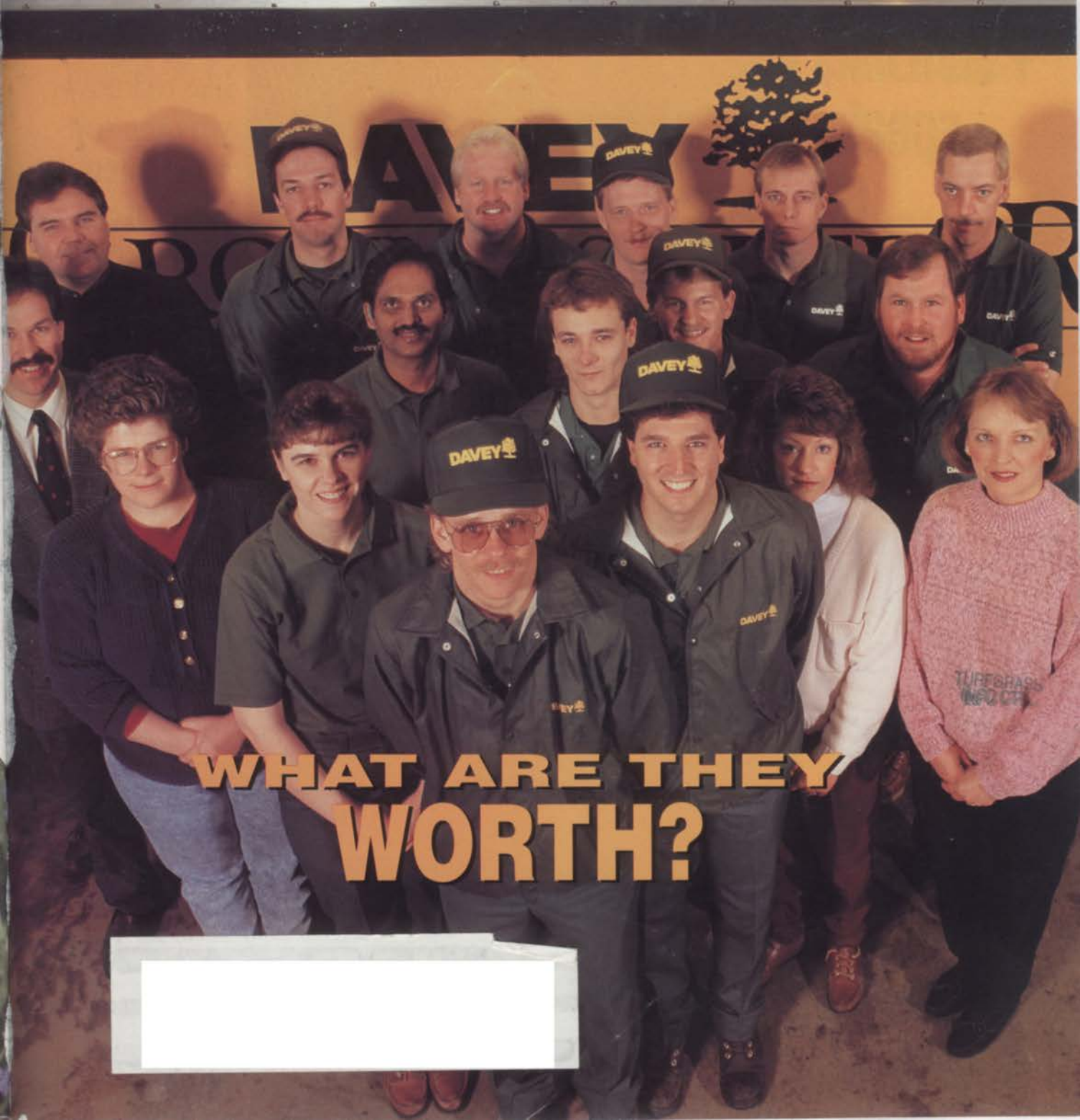
$3.00/MARCH 1991

LANDSCAPE MANAGEMENT

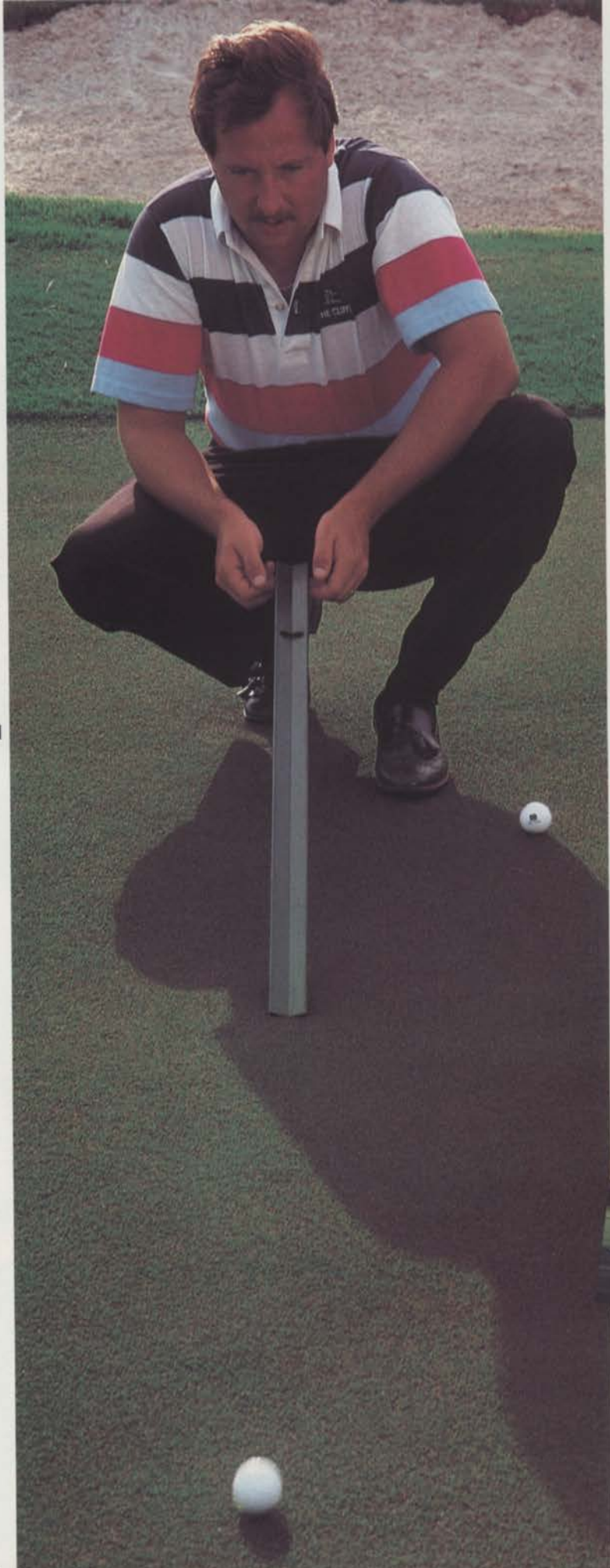
SERVING GOLF AND LANDSCAPE PROFESSIONALS



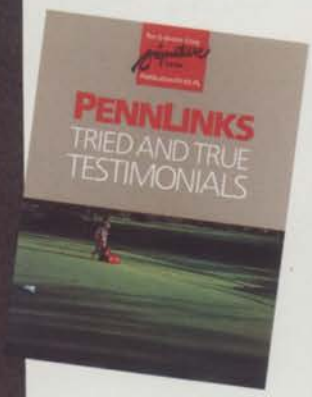
WHAT ARE THEY WORTH?

The Penn Pals: Right on Course

PennLinks speaks for itself.



But if you'd like to know why ten top superintendents are so enthusiastic about this terrific creeping bentgrass, call for our new booklet 91-02-PL today!



Tee-2-Green Corp.
1-800-547-0255
503-981-9574
FAX 981-5626
PO Box 250
Hubbard, OR 97032

©1991 Tee-2-Green Corp.

Circle No. 145 on Reader Inquiry Card

MARCH 1991, VOLUME 30, NUMBER 3

LANDSCAPE MANAGEMENT®

On the cover: Employees of the Davey Tree Preservation Co., Kent, Ohio. Photo by Wayne Rayburne, Productions, Inc.

32 **COVER STORY: WHAT ARE THEY WORTH**
by Jack Simonds. Depending on the part of the country you do business in, the laws of supply and demand govern the value of finding good employees and keeping them.

38 **WALK OR RIDE?**
by Jack Simonds. The landscape manager must make that decision before purchasing the appropriate mowers for his or her immediate needs.

44 **POST-EMERGENCE WEED CONTROL IN WARM SEASON GRASSES**
by Tim R. Murphy, Ph.D. Post-emergence herbicides provide the turfgrass manager with viable options to control weeds during the entire year.

52 **POST-EMERGENCE WEED CONTROL IN COOL SEASON GRASSES**
by Bruce Branham, Ph.D. The effectiveness of soon-to-be-released post-emergence control products depends largely on an understanding of the plant's physiology.

56 **PRICING FOR PROFIT, PART II**
by Travis Phillips, Ph.D. Break out your calculators! In Part II, the author explains different methods of pricing based on targeted return on investment.

62 **SURVIVING IN A TROUBLED ECONOMY, PART III**
by Ed Wandke, Maintaining economic strength during lean times requires attention to all labor, material and equipment costs.

DEPARTMENTS

4 As I See It . . .
8 Green Industry News
11 Events
14 News Briefs
18 Athletic Turf
22 People
64 Quickie-Quiz
66 Jobtalk
68 Products
80 Research Update
81 Classified
83 Ad Index
84 Problem Management

LM Editorial Staff

Jerry Roche
Editor-in-Chief

Terry McIver
Mg. Editor

LM Editorial Advisory Board

Doug Chapman
Horticulturist
Dow Gardens
Midland, MI

J.R. Hall
Extension Agronomist
VPI & SU
Blacksburg, VA

Kent Kurtz
Professor
Horticulture
Cal Poly-Pomona

Harry Niemczyk
Professor
Ohio State University
Wooster, OH

A. Marty Petrovic
Assoc. Professor
Cornell University
Ithaca, NY

A.E. Dudeck
Professor
Univ. of Florida
Gainesville, FL

LANDSCAPE MANAGEMENT (ISSN 0894-1254) is published monthly by Edgell Communications, Inc. Corporate and Editorial offices: 7500 Old Oak Boulevard, Cleveland, Ohio 44130. Advertising Offices: 7500 Old Oak Boulevard, Cleveland, Ohio 44130, 233 North Michigan Avenue, 24th Floor, Chicago, Illinois 60601 and 3475 Lenox Road, N.E., Suite 665, Atlanta, Georgia 30326. Accounting, Advertising Production and Circulation offices: 1 East First Street, Duluth, Minnesota 55802. Subscription rates: $30 per year in the United States: $55 per year in Canada. All other countries: $100 per year. Single copies (pre-paid only): $3.00 in the U.S.; $6.00 in Canada; elsewhere $10; add $3.50 per order for shipping and handling. Back issues, if available, $10; add $3.50 per order for shipping and handling (pre-paid orders only). Office of publication: Edgell Communications, Inc., 1 East First Street, Duluth, Minnesota 55802. Second class postage paid at Duluth, Minnesota 55806 and additional mailing offices. Copyright © 1991 by Edgell Communications, Inc. All rights reserved. No part of this publication may be reproduced or transmitted in any form or by any means, electronic or mechanical including photocopy, recording, or any information storage and retrieval system, without permission in writing from the publisher.
Canadian G.S.T. number: R-124213133.

POSTMASTER: Send address changes to LANDSCAPE MANAGEMENT, P.O. Box 6198, Duluth, Minnesota

BPA ABP

We gave the

INTRODUCING

Wet grounds can cause your profits to slip as quickly as the drive belts on some commercial mowing machines.

That's why John Deere has banished the belt, replacing it

belt the boot

THE NEW WET-DISK DRIVES FROM JOHN DEERE

with a more reliable, more durable wet-disk clutch.

Of course, we don't recommend mowing in the rain, or in extremely wet conditions. But when you must, our new 14- and 17-hp wet-disk-drive mowers handle the situation well.

Helping keep you and your cash flow moving in a positive direction.

Disk-drive clutches are enclosed in the transmission case and lubricated for long life. No external drive belts. No moisture-induced traction loss.

The 5-speed, gear-drive transmission (with reverse) can be shifted on the go.

Console and handle-mounted controls are within easy reach.

An exclusive oscillating deck provides cutting widths of 48 and 54 inches in each horsepower size.

See your dealer for more information on the new wet-disk drives from John Deere. Or call 1-800-544-2122.

NOTHING RUNS LIKE A DEERE®

JOHN DEERE

UNIQUE HAND CRANK on all four models lets you adjust cutting height from ¾ to 4 inches.

Circle No. 109 on Reader Inquiry Card

AS I SEE IT...

More on the 'recession'

● *According to a recent article in "Forbes" magazine, the boom that the golf industry and the National Golf Foundation has been touting for the last three years never really existed.*

The article painted a bleak picture for the golf industry, noting six Chapter 11 filings by golf course developments in New England, and foreclosure of Ipswich (Mass.) Country Club.

It said that "only" 200 golf courses will probably be built in the next two years. It quoted one supplier as saying the market will grow between two and five percent per year.

● *At the most recent Virginia Turfgrass Conference, green industry consultant Ed Wandtke predicted that lawn care business will increase between three and five percent in 1991. This, Wandtke said, is a far cry from the 20 percent annual increases we were seeing in lawn care revenues during the early 1980s.*

And now I'm going to tell you that the green industry, taken as a whole, is recession-proof. And you're going to say, "huh?" And I'm going to explain:

There is no doubt about it, the United States is in an economic recession. All economic indicators, at this writing, were hitting the silk faster than the 101st Airborne. Most production-based industries (except defense) were reporting revenue losses.

Yet the sales of service-based industries remain steady. And even the most pessimistic of pessimists are predicting some growth for the green industry. Two to five percent—from the vantage point of industries expected to lose 10 and 15 percent in 1991—must look pretty healthy.

Wandtke also explains that he expects to see a 20 to 30 percent increase in landscape sales this year, which is largely unheard of in this type of economy. Why?

"The customer mix changes in an economic stress period," Wandtke says, "but the business doesn't go away.

"Among homeowners, especially, I believe you'll see a re-commitment to their current properties, rather than wanting to spend $150,000 on new houses."

Wandtke sees families staying at home for vacations this summer. Why go to Orlando or Hilton Head to play golf and pay for extra housing when you've got a perfectly good roof over your head to start with?

Eldon Dyk, current president of the Associated Landscape Contractors of America, agrees in principle with Wandtke. He reveals his thoughts in Jack Simonds' article elsewhere in this issue.

Our conclusion, then, based on what we've heard in three months of trade shows and telephone conversations, is this:

The green industry is virtually recession-proof. There might be intensified jockeying for customers or budgets, but the astute landscape manager will indeed come through the recession in excellent shape. Bet on it.

Jerry Roche

Jerry Roche, editor-in-chief

LM

EDITORIAL STAFF

Jerry Roche, Editor-in-Chief
Terry McIver, Managing Editor
Maureen Hrehocik, Group Editor

Office: 7500 Old Oak Blvd.
Cleveland, OH 44130
(216) 243-8100
FAX (216) 826-2832

MARKETING STAFF

Jon Miducki, Associate Publisher
Ann Langhenry, Central Sales Manager
Paul Garris, North Central Sales Manager
Judy Allen, Group Marketing Manager
Bob Earley, Group Vice President

Office: 7500 Old Oak Blvd.
Cleveland, OH 44130
(216) 243-8100
FAX (216) 826-2832

Dick Gore, E. Coast Representative

Office: 3475 Lenox Rd. N.E.
Suite 665
Atlanta, GA 30326
(404) 233-1817
FAX (404) 261-7022

Robert Mierow, W. Coast Representative

Office: 1515 NW 51st Street
Seattle, WA 98107
(206) 783-0549
FAX (206) 784-5545

SUPPORT STAFF

Carol Peterson, Production Mgr.
Rosy Bradley, Sr. Production Mgr.
Ken McShane, Production Director
Dave Lynas, Graphic Design
Marilyn Copp, Circulation Super.
Lynn Viele, Directory Coordinator
Gail Parenteau, Reader Service Mgr.

Office: 120 West Second St.
Duluth, MN 55802
(218) 723-9200
FAX (218) 723-9223

David Komitau, Graphics Coordinator

Office: 7500 Old Oak Blvd.
Cleveland, OH 44130
(216) 243-8100

Richard B. Swank, Chairman; Richard Moeller, President; Lars Fladmark, Executive Vice President; Arland Hirman, Vice President/Treasurer; James A. Adler, Vice President; Joe Bilderbach, Vice President; David T. Mayer, Vice President; Brian Nairn, Vice President; Phil Stocker, Vice President

The choice of sod producers ... everywhere.

For the finest bluegrass turf on earth . . . reach for the stars

Columbia produces a moderately low growing, medium textured turf with a bright medium dark green color. Columbia has exceptional Fusarium blight resistance and tolerance to stripe rust, good leaf spot, leaf rust, stem rust, dollar spot and stripe smut resistance. Columbia has good winter color and early spring green-up.

Midnight is the darkest green bluegrass available today. Midnight's low growing, compact dense turf has good heat and cold tolerance. Midnight offers good resistance to leaf spot, stem rust, stripe smut and dollar spot. Midnight adds deep, dark green color to Galaxy . . . or any turf.

Challenger has a bright dark green color and is low growing with medium fine leaves and medium high density. Challenger has good tolerance to stripe rust, and resistance to Helminthosporium leaf spot, leaf and stem rust, stripe smut, dollar spot and Fusarium blight. Challenger is fast emerging for quicker establishment.

Galaxy Blend contains Midnight, the perennial top performer in National Bluegrass trials.

GALAXY

CERTIFIED SEED Oregon

blue tags qualify for cash to turf organizations and prizes to individuals. Call or write for details.

1-800-247-6910
FAX 503-981-5626
Turf-Seed, Inc.
TURF-SEED ®
P.O. Box 250, Hubbard, OR 97032
503/**981-9571** TWX **510-590-0957**

Circle No. 146 on Reader Inquiry Card

No hands. No hoes.

Introducing Snapshot.

The picture is perfect with new Snapshot,® the preemergence herbicide with advanced isoxaben. Just aim at your ornamentals and shoot. Our free technical guide tells you how.

Gone is the sweat of handweeding and hoeing. And gone are their high costs. Either can cost you $30 to $50 in labor costs for each 1,000 square feet you weed.

New Snapshot covers the same area for only about $2.50 to $3.25 in just minutes. Gone are 86 tough broadleaves and grassy weeds all season long. No kidding. Get all the details today.

No weeds. No kidding.

Send for your free Snapshot technical guide.

Just clip this coupon and mail to: DowElanco Fulfillment Center
P.O. Box 3064
Cedar Rapids, IA 52402

Or call toll-free:
1-800-729-3693, ext. 7121.

Name _____ Title _____

Company _____

Address _____ City _____ State _____ Zip _____

Phone (_____) _____

Current DowElanco distributor _____

DowElanco™
*Trademark of DowElanco

Circle No. 110 on Reader Inquiry Card

GREEN INDUSTRY NEWS

MARCH 1991, VOLUME 30, NUMBER 3

LANDSCAPE MANAGEMENT

EQUIPMENT

Cornell U. research proves mulch mowers' superiority

ITHACA, N.Y. — Mulching mowers yield healthier lawns and their use should be a standard practice throughout the turfgrass industry, Cornell University's Dr. Martin Petrovic says.

"The whole industry should be using mulching mowers," he says. "A mulched lawn always looks better than a non-mulched lawn because you have healthier turf when returning clippings as added nutrients."

Petrovic, associate professor of turfgrass science, cites an earlier Michigan State University study which showed that mulching produces generally healthier and greener lawns both because of added nutrients and allowance for evaporation at the soil level without thatch buildup.

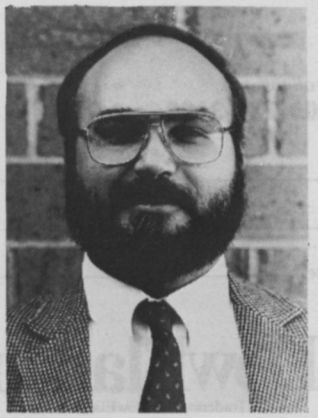
The study also found mulch particles decompose and are absorbed by the grass root system within 14 days.

Mulching also can reduce nitrogen fertilizer needs by 30 percent.

Petrovic's remarks came at a recent seminar in Troy, N.Y. at the headquarters of Garden Way, Inc., which manufactures Troy-Bilt and Bolens tillers, mulching mowers, chipper-shredders and outdoor power equipment.

The company says mulching mowers are gaining support from agronomists and turfgrass experts.

For more information on current overall trends in mowing equipment, refer to the article beginning on page 38 of this issue. □



Petrovic: Mulching can reduce N requirements.

Mulching mowers like Toro's patented Recycler (shown above) chop grass leaf blades into fine pieces that don't ordinarily 'clump,' leaving clean, well-groomed lawns.

RISE names 1st director

WASHINGTON, D.C. — Allen James has been named executive director of Responsible Industry for a Sound Environment (RISE), an organization recently formed to address the issues affecting the $1.3 billion specialty pesticides industry.

"James brings considerable management experience and broad knowledge of the industry to this important environmental postition," say David Duncan and Jay Vroom. Dr. Duncan of Monsanto was search committee chair; Vroom is president of the National Agricultural Chemicals Association.

One of the main functions of RISE is to explain the benefits associated with proper use of pesticides, including benefits to the public health. Membership is composed of manufacturers, formulators and distributors of specialty pesticides; associations, media, academia and equipment manufacturers. □

INDUSTRY

Customer service easy as counting, says ALCA speaker

NASHVILLE, Tenn. — Creating good customer service is as easy as 1-2-3-4-5-6-7, says Richard Akerman, president of Northwest Landscape Industries.

Akerman, speaking before the Associated Landscape Contractors of America (ALCA), listed the seven "basics of customer service" that all industry professionals can benefit from.

1. The secret to winning customers is to reward them. Be prompt, kind, agreeable, complimentary, polite, make recommendations and deliver more than you promised.

2. Forget about selling. Concentrate on helping customers decide what's best for them.

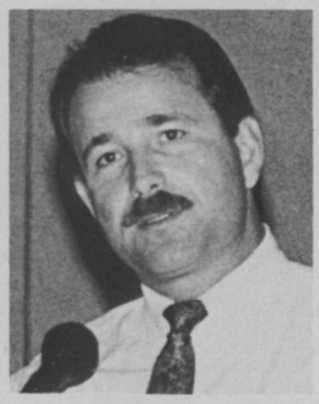
3. Remember that the greatest customer you'll ever win is you, because the best sales person is the true believer.

4. The only two things people really buy are good feelings and solutions to problems.

5. Remember that when in contact with a customer, you are the company.

6. Providing excellent service isn't enough. You need to subtly remind the customer that you're doing so.

7. To win new customers, ask the golden question: what is their unmet want? To keep current customers, ask them, "how are we doing?" □



Akerman: to sell, you must truly believe in company.

LANDSCAPING

Construction downswing helps free up labor force

ORLANDO, Fla. — Mike Stewart of Ground Control Environmental Services says that competition for college graduates is strong in the landscape market. "We all recruit," says Stewart. "In the past, there were 10 jobs for every graduate. But the downswing in construction has helped."

"Over the last several years, many companies have sprung up to take advantage of the good times," he notes. But, he adds, in his area the landscape construction boom is over, and more design/build companies are doing more full-service maintenance, especially among corporate clientel.

Promotion from within is "without a doubt," a tenet of Stewart's business management. "I would say half the staff has been promoted from within the organization. Quite a few of the supervisors who started out as laborers showed some aptitude.

"One was a carpenter from Trinidad. We didn't identify him as anyone special. He was dependable, and now he runs one of the crews."

Do low wages keep people away from landscaping? "I think it's a combination of that and the business," Stewart admits. "It's weekend work, it's a lot of late work. It's not a nine-to-five job."

What frustrates Stewart are the times at which he establishes his prices based on proper horticultural treatments—such as applications of pre- and post-emergence control products—and finds companies bidding at prices that are lower than Stewart's chemical costs.

"I try to explain to the contract adminstrator that my chemical costs are more than what (the competitor) is charging," says Stewart. "He's going to cut the lawn; that's all he's going to do.

"And the sad thing about it is that you probably won't see a difference for the first year. But long term, you're going to have problems with evergreens, crabgrass, broadleaves." □

Next month:

- Top 50 landscapers
- Warm-season insect control
- Making your job safer
- Right-of-way landscaping

ACADEMIA

WTA will open research center

OCONOMOWOC, Wisc. — The O.J. Noer Research Center will soon become a reality at the University of Wisconsin.

Don Roskopf, president of the Wisconsin Turfgrass Association, said at the association's annual conference that ground-breaking took place in October.

"Dreams do come true," said Monroe Miller, superintendent of Black Hawk Country Club. According to Miller, $100,000 of the $300,000 cost has been raised.

The 27-room facility includes two conference rooms and pesticide and soil research facilities.

The deed for the completed center will be given to the university.

The Bruce Co. of Wisconsin is playing a large part in constructing and landscaping the center. Industry contributors include the Reinders Bros. and Spring Valley Turf Products. Grass seed was supplied by Kellogg Seed, Old Seed and Northrup King.

Fund-raising continues. □

EVENTS

MARCH

13-14: Reinders Brothers Turf Conference, Equipment Show and Service Clinic, Waukesha (Wisc.) Expo Center. Contact: Ed Devinger, Reinders Brothers, (414) 786-3301.

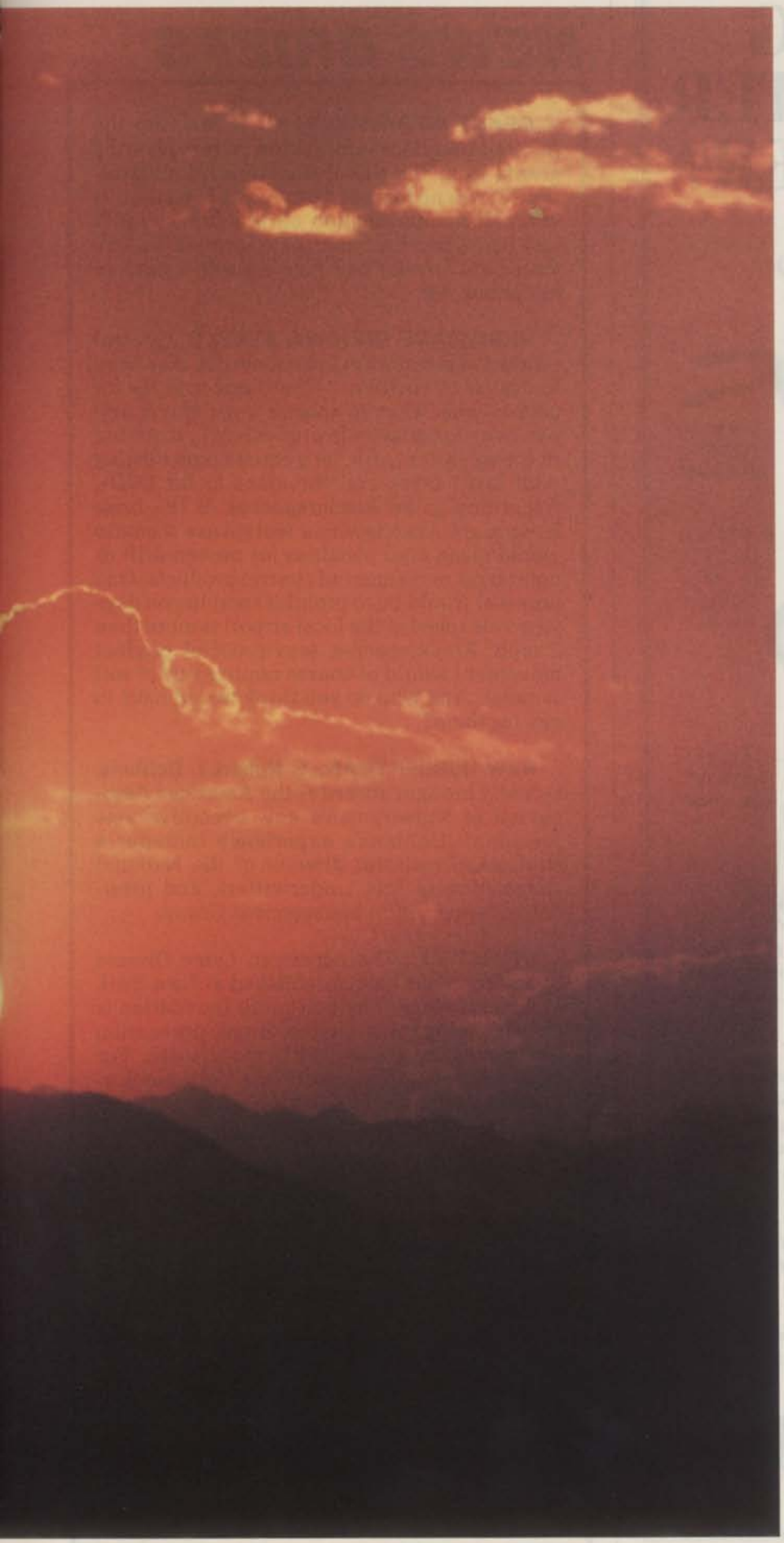
14-15: California Interior Plantscape Association Council conference and trade fair, Sequoia Athletic Club, Buena Park, Calif. Contact: Hartley Bennett, CIPAC Seminar Coordinator, P.O. Box 414, Wickenburg, AZ 85358; (602) 684-7308.

17-20: Public Golf Management Association, National Forum on Public Golf Management, Hyatt Regency-DFW Hotel, Dallas. Contact: PGMA, 8030 Cedar Ave., Suite 228, Minneapolis, MN 55425; (612) 854-7272.

27-28: University of California Cooperative Extension Entomology Conference, UC-Riverside. Contact: (714) 787-3718.

27-28: Yard Waste Management Conference, Albany (N.Y.) Hilton Hotel. Contact: Cary Oshins, 466 Hollister Hall, Cornell University, Ithaca, NY 14853; (607) 255-9587.

©1990 CIBA-GEIGY Corporation, Turf and Ornamental Products, Box 18300, Greensboro, NC 27419. Always read and follow label directions.



THERE ARE TWO THINGS YOU CAN COUNT ON WITHOUT FAIL. OURS IS THE ONE WITH THE CONVENIENT HANDLE.

There are certain things you take for granted.

Like the sun rising each and every day.

And the fact that Subdue®, applied preventively every 10-21 days, virtually eliminates the threat of Pythium.

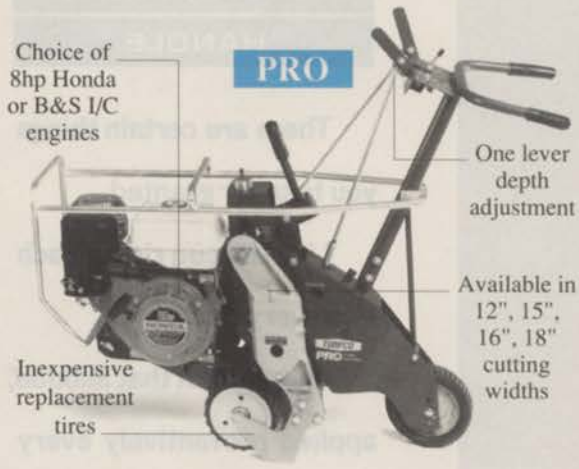
And while the handle certainly makes Subdue easier to grab onto, it's also worth noting that, unlike the sun, Subdue comes in both liquid and granules.

For details, contact your turf products distributor.

Circle No. 106 on Reader Inquiry Card

LOOKING FOR A BETTER SOD CUTTER?

Turfco Gives You Two


PRO
Choice of 8hp Honda or B&S I/C engines
One lever depth adjustment
Available in 12", 15", 16", 18" cutting widths
Inexpensive replacement tires

PRO LITE
Light weight for easy control
Designed for easy operation
Choice of 5hp Honda or B&S I/C engines
Inexpensive replacement tires

Turfco introduces the newest idea in sod cutters: a choice. Choose the Turfco Pro or Pro Lite. Both have been redesigned for smoother running, simpler operation and lower maintenance costs. Now you can fit the machine to the job, instead of the other way around.

Turfco has shown our dedication to quality, customers' needs and innovative design by building rugged turf maintenance products that have been the better choice since 1953.

See the entire family of high quality Turfco products at your local Turfco dealer, or call 612 / 785-1000 for the dealer nearest you. Fax number 612 / 785-0556.

TURFCO

Simply Better.

Circle No. 148 on Reader Inquiry Card

NEWS BRIEFS

GRANT INFORMATION II... Remember the number to call for information on tree planting grants from the Small Business Administration? It was no longer in service by presstime. If you call for information on the grants, you'll just be referred to your state forester. So call your state forester and save yourself a game of telephone tag.

NIGHTMARE ON IOWA STREET... Control product applicators in Iowa some day may have to deal with "drifters." That's our new tag for people who want to impose regulations and penalties for miniscule product drift. It started in the ag sector (sure, let's equate crop dusting with lawn care), and threatens to hit LCOs. According to **Ed Rinderspacher** of the Iowa Lawn Care Association, a worst-case scenario would mean civil penalties for proven drift or non-target movement of control products. One proposal would be to prohibit spraying on days when air speed at the local airport is more than 7 mph. Rinderspacher says proof of product movement would of course require turf or soil samples. And who do you think would have to pay for them?

NEW NURSERYMAN...is **Robert J. Dolibois,** recently brought aboard as the American Association of Nurserymen's new executive vice president. Dolibois's experience includes a stint as an assistant director of the National Association of Life Underwriters, and president of Association Management Group.

LYME TIME... The American Lyme Disease Foundation has been established at New York Medical College. The non-profit foundation is for advancing research, treatment, prevention and public awareness of Lyme disease. For more information, contact New York Medical College, Valhalla, N.Y. by phoning (914) 993 4529; (914) 993-4536.

BOOK MONEY FOR KIDS... More than $25,000 in post-secondary scholarships is to become available for the dependents of small business owners in the U.S. and Canada. "We know that education is essential in today's knowledge-based society," says Dan Sautner of Padgett Business Services, Athens, Ga. Padgett, a network of more than 130 franchises providing accounting and tax services to small businesses, is sponsoring the scholarships. For more information, call (404) 548-1040 in the U.S. or (416) 890-5777 in Canada.

HOW TO MAKE THE GRADE IN TURF.

THE A-TEAM FROM NK MEDALIST.®

AMIGO, ARRIBA AND ARID TALL FESCUES.

We've blended three of the best improved tall fescues available and named them the A-TEAM. The name says it all about the high grade of performance you can expect.

Arriba and Amigo are dwarf varieties that have ranked at or near the top in low-maintenance, color, texture and other key categories in the National Turf Evaluation Program (NTEP) Tall Fescue Trials. Arid, a semi-dwarf, finished the most recent NTEP Trials ranked #1 in overall turf quality. And all three varieties are already making the grade in actual use. These NK exclusives are available individually or in the A-TEAM blend. Contact your NK Medalist Turf Distributor, or call 1-800-545-6093.

NK®

©NK, 1990

NK Medalist headquarters: Minneapolis, MN. Branches in: Tangent, OR, Sun Prairie, WI, Bound Brook, NJ, Chattanooga, TN.

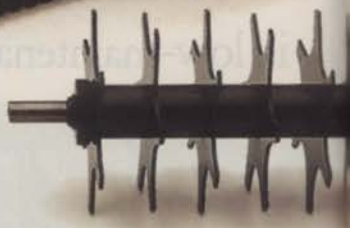
Circle No. 122 on Reader Inquiry Card

It Stopped Just To Have Its P

You're witnessing a rare sight. Toro's Reelmaster® 450-D actually standing still. A rare sight because the Reelmaster 450-D is so dependable that it goes and goes and goes. Giving you the high capacity mowing and precise even cutting you've been looking for.

Each cutting unit is connected to a universal joint, so it can float freely in any direction, following the contour of the turf for an even, uniform cut. Or can be locked in a fixed position.

The Toro 450-D gives you protection against hydraulic fluid leaks. Wherever possible, hoses have been replaced with strong steel lines and O-ring seals protect connections. A hydraulic warning system flashes an alarm when the fluid level drops. For easy servicing, test ports for the hydraulic system are right on the side of the machine.



The Reelmaster 450-D can be customized with these accessories: ROPS, Cab, 5- and 7-bladed reels, rollers and thatching reels.

The Toro Company, Commercial Marketing Services, 8111 Lyndale Ave. So., Minneapolis, MN 55420.

t Long Enough
icture Taken.

Toro's exclusive variable clip control allows you to calibrate reel speed and mowing speed to give you the highest quality of cut in varying course conditions. Combine that with faster mowing speeds, up to 7.5 mph and 12.5 mph transport speed, and you're going to witness an increase in productivity. All controls are in easy reach of the operator to provide greater comfort.

The 450-D is designed with its weight evenly distributed around a center-mount 50 hp engine for better balance. This means more uphill climbing ability than other machines and better traction.

Compared to tractor gang mowers, the Toro 450-D weighs less and is equipped with wide 31-inch tires that spread the weight for the lowest PSI, further minimizing turf marking.

For faster, easier mowing with more beautiful results, call your local Toro distributor for a demonstration of the Reelmaster 450-D or contact Toro at the address below. A machine built from the ground up with proven Toro design experience. And that translates into the kind of productivity no one can argue with.

TORO

The Professionals That Keep You Cutting.

"Toro", and "Reelmaster" are registered trademarks of The Toro Company. ©1988 The Toro Company.

Circle No. 147 on Reader Inquiry Card

THE BEST ISN'T ALWAYS THE BEST KNOWN
Not everyone knows the GRAZER name, but those who do also know GRAZER is today's best value in mowing products. Features such as fingertip control hydrostatic drive, a true zero turning radius, tilt back deck and exceptional weight distribution make GRAZER the name to look for. Write or call for more information today.
GRAZER
GRAZER DIVISION, M&W GEAR COMPANY
ROUTE 47 SOUTH, GIBSON CITY, ILLINOIS 60936
PHONE: 217/784-4261

Circle No. 116 on Reader Inquiry Card

You've Paid Your Dues. Now Pay Yourself.

A ServiceMaster LawnCare Franchise lets you be your own boss and get the payback you deserve. As the industry leader, we offer all the training and support you need. So you're on your own, but with a lot of company behind you. If you're overdue for a promotion, call toll-free at 1-800-228-2814.

Partners in the ServiceMaster Quality Service Network.

ServiceMASTER. TERMINIX. merry maids.
AMERICAN HOME SHIELD

Circle No. 140 on Reader Inquiry Card

ATHLETIC TURF

Foxboro to natural grass

Installation of a new heated sand-based grass field in Foxboro Stadium, home of the New England Patriots' NFL team, has begun. The natural surface will replace the seven-year-old artificial SuperTurf surface.

"This is a great commitment on behalf of Victor Kiam and the Patriots organization to install a proven natural turf field," says Patriot CEO Sam Jankovich. "This is in the best interest of Patriot players and other players around the NFL. In addition, such a surface is conducive to a better brand of football.

The surface is designed and installed by Randall & Blake Environmental Contractors of Littleton, Colo., which built the Denver Broncos' practice fields in 1989.

The grass surface should be completely installed by May 1, and the field should be ready to play by June 1, according to Dan R. Almond of Randall & Blake.

Mark Altman of Altman & Altman is being retained as turf consultant.

Spring institute grows

California Polytechnic University in Pomona has expanded its eight-year-old spring institute and trade show to include a grounds operations conference.

The Sports Turf Institute and Grounds Operations Conference will be held March 19 this year. Educational sessions are slated for morning hours, followed by lunch and trade show and equipment sessions after noon.

"The new program will offer the latest information on maintaining trees, groundcovers and turf on tight institutional budgets," says conference chairman Dr. Kent Kurtz. "It will stress the basics, such as irrigation, fertilization, pest control, plant selection, water conservation, planning and pruning."

For more information, call Cal Poly's Horticulture Department at (714) 869-2219.

To join STMA

To receive information on services offered by the Sports Turf Managers Association, write: STMA, P.O. Box 98056, Las Vegas, NV 89193 (702) 739-8052. **LM**

Here's proof that Typar Pro Landscape Fabric is easier to install.

We cut this piece of Typar® Pro Landscape Fabric to show what you can't do with the others.

Like cut quick slits for plants to pass through. Or fast curves that follow landscaped contours.

Typar is easily cut, lightweight and less bulky. So it's faster and cheaper for you to install.

And it's surprisingly tougher. With rugged polypropylene fibers that resist tearing, even under stones, gravel, patios and sidewalks. Typar is also porous, so air, water and nutrients can pass right through. Your landscaping projects look healthy as well as handsome.

So save time and labor while you control weeds, drainage, soil erosion, and heaving of walks and patios.

Get Typar Pro Landscape Fabric.

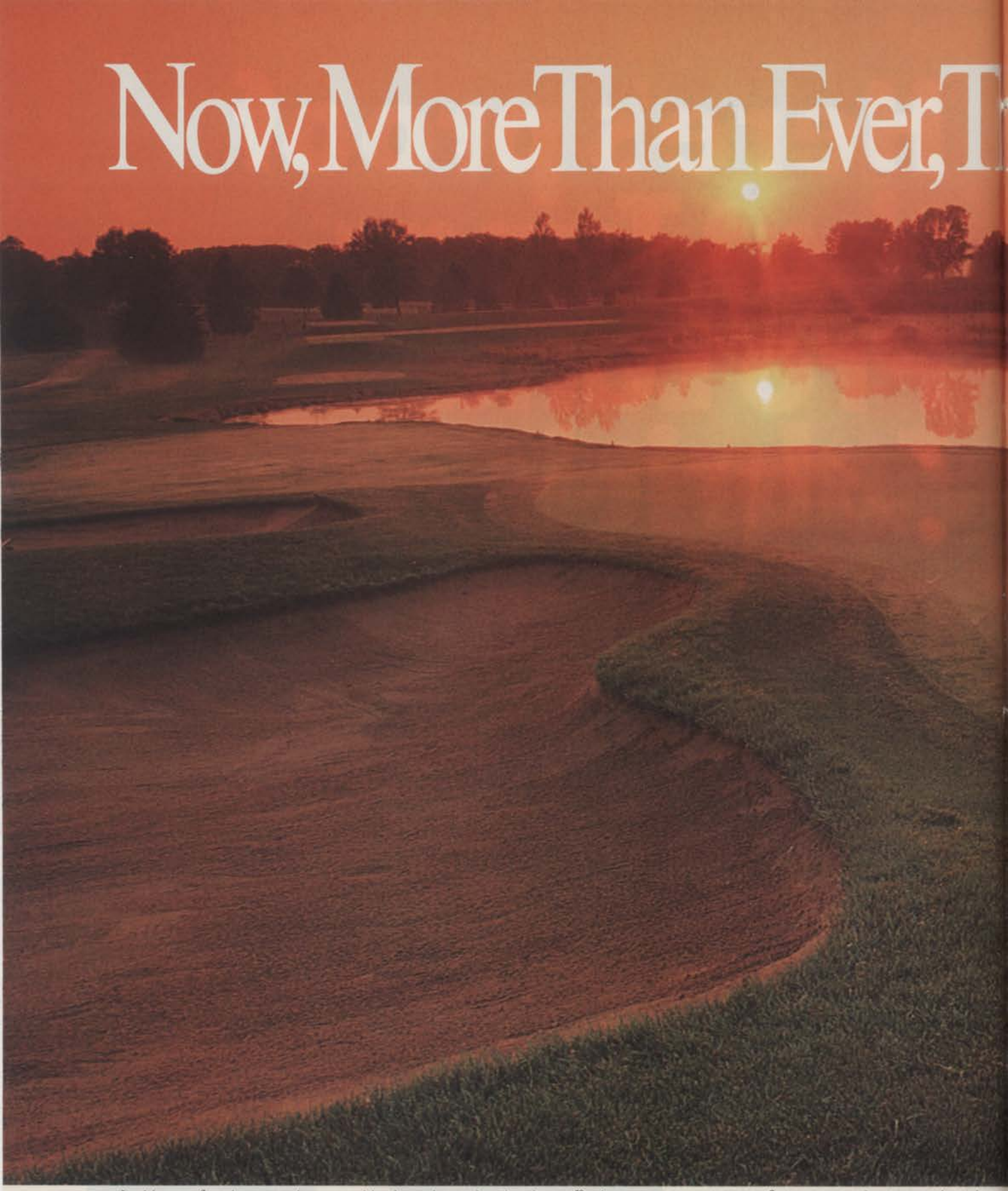
And start cutting corners the easy way.

TYPAR® Landscape Fabric

FOR PROFESSIONALS

REEMAY
a member of The Interfech Group, Inc.

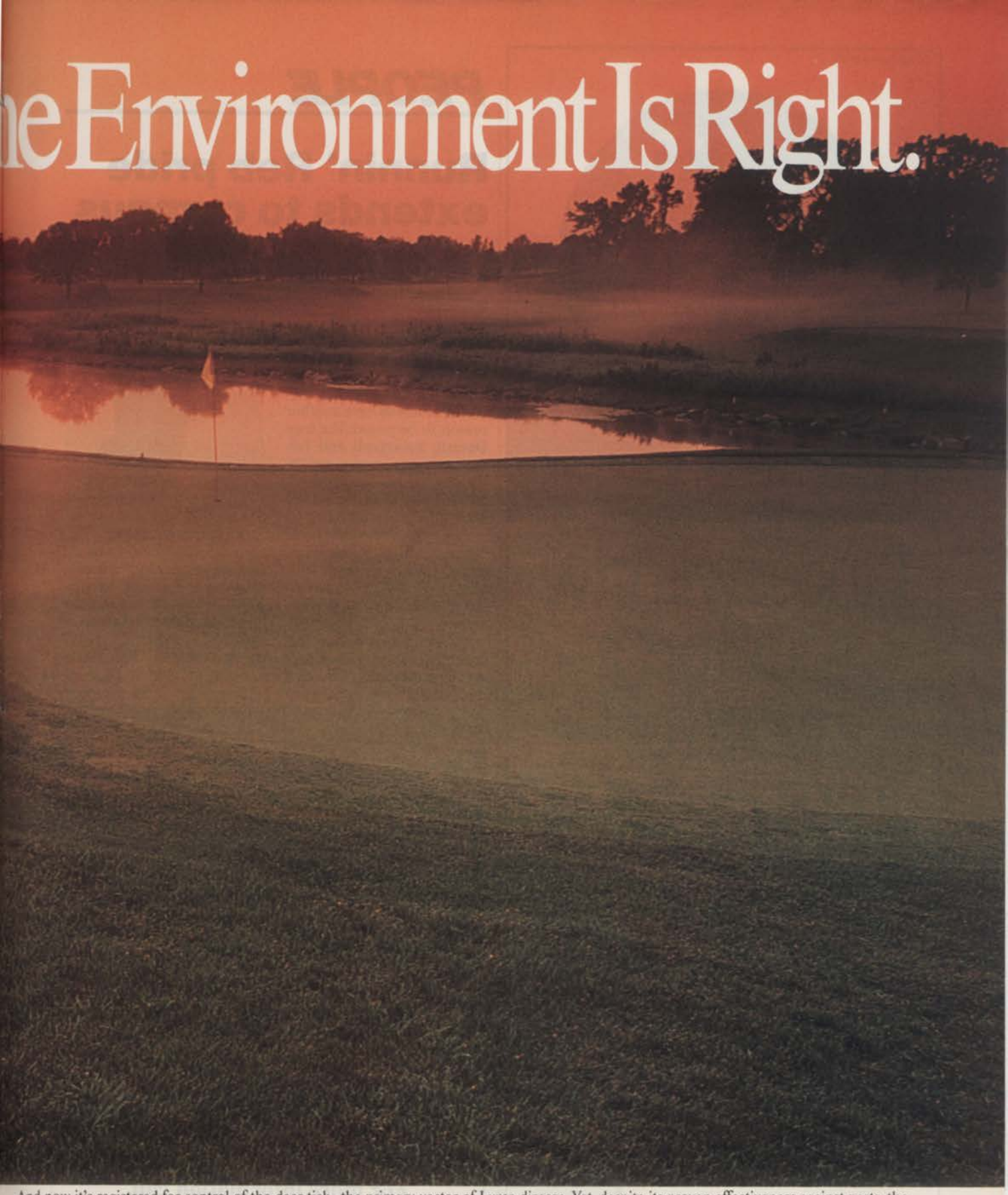
Circle No. 131 on Reader Inquiry Card



In this age of environmental concern, it's nice to know that there's an effective way to protect your turfgrass, trees and ornamentals against damaging pests without compromising the environment: CHIPCO® SEVIMOL® brand carbaryl insecticide. You see, not only does CHIPCO® SEVIMOL® control your worst turf enemies, it also protects trees and ornamentals against 86 troublesome insects.

Chipco®

As with any crop protection chemical, always read and follow instructions on the label. CHIPCO and SEVIMOL are registered trademarks of Rhone-Poulenc.



And now it's registered for control of the deer tick—the primary vector of Lyme disease. Yet, despite its proven effectiveness against pests, the low environmental impact of CHIPCO® SEVIMOL® brand means that all this control, economy and convenience does not come at the cost of compromising your responsibility to nature. Get all the facts. Call your turfcare chemicals supplier today.

Sevimol®
Brand Carbaryl Insecticide

© 1990 Rhone-Poulenc Ag Company, 2 T.W. Alexander Drive, Research Triangle Park, NC 27709. For additional information, please call: 1-800-334-9745.

RHÔNE-POULENC

Circle No. 136 on Reader Inquiry Card

© Ringer Corporation, 1990

Ringer will give your turf a world of improvement.

Ringer products use natural protein sources for slow-release nutrition without chemicals. Applied at recommended rates, Greens 6-1-3, Turf 10-2-6, and Green Super 10-2-6 will not burn.

MORE THAN A QUICK FIX. Because Ringer products utilize a unique microbial action, your turf has a healthy environment. And it keeps getting healthier.

SCIENTIFICALLY FORMULATED, ENVIRONMENTALLY SOUND. Ringer products fit right in with your present program and they strengthen disease control efforts.

Try Ringer products for a season. Because they are environmentally sound, they improve the world a little as they improve your turf a lot.

Please call or write for the name of your distributor.

RINGER®
Better, naturally

Ringer Corporation, 9959 Valley View Road, Minneapolis, MN 55344, 612-941-4180

Circle No. 135 on Reader Inquiry Card

PEOPLE

Runnin' Reb pride extends to campus

LAS VEGAS, Nev. — Students at the University of Nevada, Las Vegas (UNLV) have reason to celebrate again this spring: their varsity basketball team is apparently poised to defend its national championship at the upcoming NCAA tournament.

But students have another reason to be proud: the way **Dennis Swartzell** and his maintenance crews groom the campus. Landscape crews have even let school pride affect their attitude.

"Our tree crew calls itself 'Your Runnin' Rebel Tree Crew,'" says Swartzell, who heads up a staff of 34 responsible for 100 landscaped acres.

"Beyond that image the basketball team provides," says Les Raschko, "you can see an emerging, young, growing and proud university. Dennis and his staff do an outstanding job; we have a modern-looking, well-dressed campus." Raschko is

continued on page 26

Swartzell: in charge of 'poor man's overseed'

Marketing Management and Strategy for Green Industry Companies.

Including:
Marketing Strategies, Advertising Plans, Sales Training and Customer Service Programs.

For more information call,
AGMA INC.
Rudd McGary or Ed Wandtke
614-891-3111

Circle No. 101 on Reader Inquiry Card

THE WEEDS WILL BE BACK NEXT YEAR. WILL YOUR TRIMMER?

It happens all too frequently. You grab your trimmer, top off the gas tank, and give it a crank.

It doesn't start.

A few more tries. Then another. And another. Something rattles inside. Now, you're rattled.

You only bought the thing a few seasons ago. Repairs are probably going to run half the cost of the trimmer. Some bargain.

If what you really want is equipment you can depend on, see your Stihl dealer.

Every Stihl is built, and tested, to what may be the most exacting standards in the industry. So it's no mere coincidence that a Stihl trimmer lasts.

Stihl. It'll put an end to weeds. And, definitely, any notion of bothering with a discount trimmer.

Supercut™ cutting head automatically dispenses line. Improved anti-vibration design and clutch. Longer shaft for hard-to-reach places. Perfect for home use.
FS-40
Centrifugal clutch disengages cutting head at idle for convenience. Available with loop or bicycle handle. Incorporates anti-vibration system.
FS-66
Solid drive shaft for heavy-duty trimming and brush cutting. Electronic ignition, and anti-vibration system. Uses 8 different cutting attachments.
FS-81

STIHL®

When You Depend On Tools, Depend On Stihl.

© 1991 Stihl Incorporated.

Circle No. 142 on Reader Inquiry Card

Growth Regulation for Fine Turf in the Environmental Age

Using Embark® PLANT GROWTH REGULATOR to reduce top growth and clippings

Now, with new formulations of Embark and tank mixes with Limit®, you can *tame* the growth of turfgrasses and reduce the mowing by up to 50% — or you can *slow* it down just enough to make regularly scheduled mowings easier and faster. In either instance, there are no concerns with objectionable discoloration, and the reduction in cost is very significant.

Everett Mealman, President
PBI/Gordon Corporation

The Embark PGR programs for growth regulation of fine turf are surely the most important developments to date in landscape management. They can dramatically increase the productivity of turf managers . . . and productivity, of course, is the ultimate generator of profits.

The recommendation for maximum growth suppression of cool-season fine-turf species is a tank mix of Embark Lite and Limit.

Embark Lite (Mefluidide) is specially formulated and labeled for use on fine turf. And Limit is amidochlor, the root-absorbed turf growth regulator developed by Monsanto and recently acquired by PBI/Gordon.

This easy-to-handle tank mix, when applied to cool-season grasses prior to the major growth period, will reduce the number of mowings up to 50% for five to six weeks at a cost of approximately $45.00 per acre — the average cost of one mowing.

But that's only part of the good news: Turf discoloration is avoided with this combination, when used as directed. At the end of the six-week cycle when untreated turf tends to fade, the release of pent-up energies in the Embark Lite/Limit-treated turf results in a rich, vibrant green color.

And, notice, we haven't even mentioned the environmental bonus of reduced clippings.

On the other end of the Embark programs, an application of just Embark Lite will by itself slow down the growth for three to four weeks to such a degree that the mowers will virtually float over the turf . . . clippings will be significantly reduced . . . you'll be able to stay on schedule even during the peak growing season . . . and the cost will be only $18.00 per acre.

What users say

Paragon Lawn of Edina, Minnesota is typical of the many turf management professionals throughout the country who are using Embark. Paragon is a total landscape management company owned and operated by the husband-wife partnership team of Dan and Jill Rosen.

The business is oriented toward high-visibility commercial properties in the Minneapolis suburbs, where immaculate turf is a vital part of the image the property owners want to project to the public.

A typical area where Jill and Dan Rosen, of Paragon Lawn, use Embark Lite. For approximately $18.00 per acre they can literally take the fight out of cool-season grass, so that even in the peak growing period they not only can stay on schedule but the mowed premises will maintain their freshly cut appearance longer.

On several properties, Paragon has total responsibility for designing and executing the complete program on an annual bid basis. "Such property owners don't really care what we do or when we do it," says Rosen. "The issue is that a constant image of quality and neatness be maintained."

In such instances the Rosens factor into their bid an Embark Lite/Limit tank mix treatment twice a year. Once in the spring, ahead of seedhead emergence, and a repeat prior to the fall growth season.

"It reduces our mowing costs by more than 50%, at a cost of less than $45 per acre, while actually improving the appearance of the grass . . ." states Rosen.

On the other hand, Paragon has many customers who are on a regular mowing schedule. "We get paid a flat fee per mow," says Rosen, "and at the peak of the growing season it can be a real back breaker to stay on schedule and maintain a manicured appearance."

"This is where Embark Lite is ideal. During the peak growing season, we can definitely put money in the bank by spending $18 per acre out of our own pocket for a treatment of Embark Lite that lasts three to four weeks. It eliminates double mowing . . . it makes clipping clean-up a breeze . . . it takes pressure off men handling the mowers . . . and, best of all, it keeps us on schedule."

Interestingly, the Rosens were hesitant about getting started with Embark, and actually had a gallon in their machine shop for a year before they opened it. Like so many turfgrass professionals, the concept of suppressing growth made them uncomfortable in light of the fact that they had always measured turf quality and health on the basis of how vigorously it was growing.

Consequently, the Rosens started out very cautiously and tested both the Embark Lite/Limit tank mix and the Embark Lite *mowing aid* program in low-profile areas and expanded the total commitment as the evidence became overwhelming.

The Beauty of Embark Lite/Limit Tank Mix

Above: John Van Haften, director of research and development for PBI/Gordon, demonstrates the dramatic effectiveness of an Embark Lite/Limit tank mix. This test plot of bluegrass and ryegrass in suburban Kansas City was treated on April 25, 1990. It was mowed once, on May 1 after the PGR kicked in, and never touched again until this photo was taken on May 25. This dramatic reduction in growth occurred in spite of abundant rainfall and excellent growing temperatures.

Embark is the original, undisputed leader of all PGRs for use on turfgrass. It is foliarly absorbed and translocated to the growing points of a plant, and redirects the energy to the roots, thus preventing seedhead development and stem elongation.

For almost ten years, Embark has been virtually unchallenged for use on low-maintenance turf such as roadsides and hard-to-reach areas.

But use of Embark on highly visible fine turf was not recommended until 1986, when PBI/Gordon researchers, as well as several universities, had proven that tank mixes of Embark and Ferromec® AC Liquid Iron could eliminate the problems of turf discoloration.

Limit, on the other hand, is root absorbed and has been recognized from its inception as *the* PGR for maximum growth suppression on fine turf without problems of discoloration. The major drawback was its cost.

Happily, a tank mix consisting of reduced rates of both Embark Lite and Limit has proven to be the perfect marriage. It results in growth control for five to six weeks; control of seedheads and stem elongation; reduction of clipping volumes; strengthening of the roots . . . and all of this for only $45 per acre.

New Tank-Mix Combo!

Special Get-acquainted Offer on Embark Lite and Limit

Offer consists of a Combo Pack containing two 1-quart bottles of Embark Lite and one quart of Limit. When tank mixed, this combination will treat one acre of cool-season turfgrass and will give you a clear and rapid understanding of what Embark Lite/Limit can do for you. And the evidence will reach you in time to expand the program yet this year, beyond your original test area. See your PBI/Gordon distributor or . . .

Call toll-free 1-800-821-7925.

pbi/gordon corporation

1217 WEST 12th STREET
P.O. BOX 4090
KANSAS CITY, MISSOURI 64101

EMBARK® LITE

FINE TURF REGULATOR

743(N)-191

Embark®, Limit®, Ferromec® are registered trademarks of PBI/Gordon. © 1991, PBI/Gordon Corporation

The UNLV campus, an oasis in the middle of the southern Nevada desert, is seen in all its splendor in the spring.

PEOPLE *from page 22*
director of univerity news and publications.

Swartzell came to UNLV 8½ years ago from the University of Georgia. He has seen student enrollment grow an average of 10 to 12 percent per year to a current total of 18,216.

"Las Vegas is two different communities," Swartzell observes: "the strip, with all its glamour, and the community we live in. The community has a direct involvement in the arts and culture, (and) the gaming industry has made significant contributions to our campus.

Dominant turf is tall fescue, but common bermuda infestations necessitate overseeding the entire campus. Swartzell's crews perform what he calls a "poor man's overseed:" no scalping or dethatching or topdressing. "We basically skip a mowing, distribute the seed, drag it in, roll it and mow it. We leave the clippings as mulch. Timing is critical," he notes.

Though water use is not a critical issue yet, Swartzell thinks to the future.

"We've had seemingly ample water (from the Colorado River system) with no end in sight," he observes. "But we've realized that it's going to be an issue. We will eventually be moving to less turf, out of necessity. And we've pushed for computerized irrigation; we're hoping to complete a feasibility study this year."

That's not all.

"We're trying to introduce drought-tolerant plants like acacias and mesquites. Alleppo pines were introduced 20 years ago. The mulberries are fast shade-producers."

"Las Vegas," he further notes, "has always been looked upon as a suburb of California, but that doesn't really fit us. We've got more

continued on page 30

Olathe TURF CARE EQUIPMENT

Field Proven Olathe Equipment For The Landscape Professional!

Reliable, durable and innovative Olathe Brush & Wood Debris Chippers have been helping turf and grounds maintenance programs control brush and limbs for over 18 years!

Model 12 Brush Chipper

PTO-powered chipper reduces brush and limbs to a mulch sized chip. Features 7" diameter brush and limb capacity. Trailer mounted or 3-pt. hitch available. Folds to a convenient size for ease of transport and storage in a 5 ft. square area.

Model 182 Brush Chipper

Trailer mounted disc chipper reduces limbs and brush up to 6" diameter. 20 or 24 hp gas or 21.5 hp diesel engines available. 12" x 20" infeed opening, 360° discharge chute and 170° chipper head rotation. 30" diameter cutter disc.

Model 986 Brush Chipper

Hydraulic feed disc chipper with 42" diameter cutter drum reduces material up to 12" diameter into uniform sized chips. Gas and diesel engine options. 360° discharge chute.

Model 12

Model 182

Model 986

OLATHE MANUFACTURING, INC.
100 INDUSTRIAL PARKWAY, INDUSTRIAL AIRPORT, KANSAS 66031
913-782-4396 FAX 913-764-1473

Circle No. 123 on Reader Inquiry Card

The fight against yellow nutsedge begins here.

Only Basagran® T/O ends it here.

Unlike other herbicides which only burn back yellow nutsedge above the surface, Basagran T/O herbicide travels down to control the roots, rhizomes and tuber network underground. It's the only way to be sure those same weeds won't come back.

An over-the-top application is all it takes to win the fight against yellow nutsedge and broadleaf weeds. (A second application is recommended when regrowth occurs.) And while it's tough on weeds, it's easy on virtually all varieties of established turf.

Basagran T/O is also labeled for directed sprays in ornamental varieties.

For more information on how to control yellow nutsedge and broadleaf weeds with Basagran T/O, call **Toll Free 1-800-874-0081.**

BASF Corporation

Always read and follow label directions.
Basagran is a registered trademark of BASF AG.
© 1991 BASF Corporation

BASF

Circle No. 104 on Reader Inquiry Card

It only takes one insecticide to protect your customers from top to bottom. By using TEMPO® 2 Ornamental Insecticide, you can treat home lawns, flowers, plants, shrubs, even trees with unmatched effectiveness.

Reduce exposure. TEMPO uses 80% less active ingredient than the leading insecticide, so there's 80% less chemical to impact the environment. And that reduces the potential for exposure to your customers and their pets.

TEMPO reduces exposure to your customers, your employees and the environment.

Since TEMPO is a broad-spectrum, advanced generation pyrethroid, it gives excellent control at low dosage rates. This allows you to control tough surface-feeding pests like sod webworms, cutworms, armyworms, even ticks without yellowing the grass or interfering with fertilizers or fungicides.

A Little Tempo Will

On top of all that, TEMPO is practically odorless.

No phytotoxicity on ornamentals. Using TEMPO on all your customers' flowers, plants and shrubs is an excellent way to control leaf-feeding insects without burning the leaves or blooms.

Plus, the fast knockdown and long residual of TEMPO make it effective on tough pests like pine shoot moths, webworms and sawflies.

And again, 80% less chemical means less handling, mixing and disposal hassles, as well as less impact on the environment.

Less chemical needed to spray trees. Nothing is better on trees than TEMPO. Because not only are you spraying less

TEMPO effectively controls surface and leaf-feeding pests like tent caterpillars, Japanese beetles and bagworms.

©1991 Mobay Corporation. TEMPO is a Reg. TM of Bayer AG, Germany. 911534

Cover The Whole Lot.

chemical into the air, TEMPO also costs less than other leading insecticides.

In addition, TEMPO is compatible with all types of spray equipment and won't cause downtime due to clogging.

And it's effective on such leaf-chewing and leaf-skeletonizing insects as gypsy moth larvae, oakworm caterpillars, leafrollers, bagworms and cankerworms.

With 80% less active ingredient, it only takes a little TEMPO to cover a lot of ground. And that has big advantages for you and your customers.

For more information, contact the Mobay Corporation, Specialty Products Group, Box 4913, Kansas City, MO 64120 (800) 842-8020.

Mobay

A Bayer USA INC COMPANY

Circle No. 119 on Reader Inquiry Card

PEOPLE *from page 26*

of a Southwest look, but we need to have our own style, and that's tough."

The xeric demo garden could be a portent of the future. Swartzell takes pride in the three-year-old project that contains 150 species of plant material.

"It gives you the feeling of being in the middle of the Sonoran Desert," Swartzell says. "We're going to try and incorporate some garden features into other parts of the landscape."

Mountain States Nursery in Arizona donated shrubs to the xeric garden. Arid Zone Trees, also in Arizona, donated trees. And sixty tons of Aztec sandstone boulders came from John Muir & Co.

The xeric garden is awash in color by January. Cassia gives it a deep yellow color and 'Texas Ranger' leuco phyllums add blue.

"I'd personally like to try some more theme gardens: native, Mediterranean or even Oriental," Swartzell says.

While Swartzell himself becomes more involved in facility planning and site development ("We're filling up the vacant desert"), Paul Dzerk has joined the staff as horticultural specialist to train the troops, inspect construction, keep pest and registration records, and control quality.

And the inimitable Jerry Tarkanian, of course, maintains control of the Runnin' Rebs' basketball fortunes.

—*Jerry Roche*

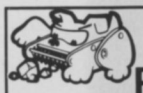
President Bush honored by ALCA

President George Bush has won the first "President's Award for Environmental Excellence" sponsored by the Associated Landscape Contractors of America (ALCA). He was selected, in particular, because of his America the Beautiful" program.

Steve Wharton of Steve's Landscaping, Ft. Worth, Texas, and **David L. Phelps** of Suburban Lawn & Landscape Services, Crownsville, Md. have been appointed to fill vacancies on the board of directors of the Professional Grounds Management Society (PGMS).

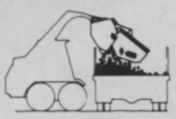
Dr. Phil Robinson has been appointed director of research for Agri Growth Research of Indianapolis. He was previously with Hoechst-Roussel.

Winner of the Nebraska Turfgrass Foundation's Distinguished Service Award is **Dr. Robert C. Shearman**, a former LANDSCAPE MANAGEMENT technical advisor. □

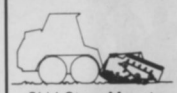


ROCKHOUND LANDSCAPE RAKE

A SERIES ROCKHOUND



Dumping



Skid Steer Mount (Hydraulic)

3 Point Mount

COST EFFECTIVE ROCKHOUNDS Rake and collect rocks and surface debris, leaving the soil in a fluffy, level, seed-bed quality condition.

It does not cost to own a ***Rockhound. . . IT PAYS!***

1-800-426-5615

KEM ENTERPRISES, INC.
18425 Eighth Ave. S.W.
Seattle, WA 98166

Circle No. 112 on Reader Inquiry Card

Expand Your Horizon

JOIN PGMS

BY LEARNING ABOUT THE PROFESSIONAL GROUNDS MANAGEMENT SOCIETY, YOU'LL BE MADE AWARE OF THE MANY BENEFITS IT HAS TO OFFER.

WATCH YOUR CAREER EXPAND... JOIN PGMS TODAY!

- **ANNUAL CONFERENCE & TRADE SHOW** — This yearly forum brings together grounds managers, top speakers and suppliers for the sharing of knowledge and ideas.
- **DISCOUNTS** — Members receive discounts on Hertz, Avis and Alamo Rental Cars as well as discounts on a complete line of horticultural publications.
- **WORKSHOPS** — Workshop training is available all over the country and offers management skills covering all aspects of grounds management.
- **CERTIFICATION** — You can become a Certified Grounds Manager by receiving a voluntary peer review of acceptable competence.
- **AWARDS** — Members are recognized for outstanding achievements in grounds management in the Annual Grounds Maintenance Awards Contest.
- **NEWSLETTER** — A newsletter is mailed monthly to keep members current on the affairs of the Society and the latest developments critical to successful grounds management. Personnel and position vacancy notices are also listed to create employment opportunities.
- **SURVEY INFORMATION** — The Society conducts research on operational practices. These surveys are made available to members only.
- **GUIDELINE PUBLICATIONS** — AVAILABLE FREE TO ALL MEMBERS:
  - ***Grounds Maintenance Estimating Guide*** — To assist you in **total cost** job estimating.
  - ***Grounds Maintenance Management Guidelines*** — Now available to assist you in management.
  - ***Grounds Management Forms & Descriptions Guide*** — To help you with your routine daily tasks!

Clip and Mail to: **PROFESSIONAL GROUNDS MANAGEMENT SOCIETY**
10402 Ridgland Road, Suite 4, Cockeysville, MD 21030

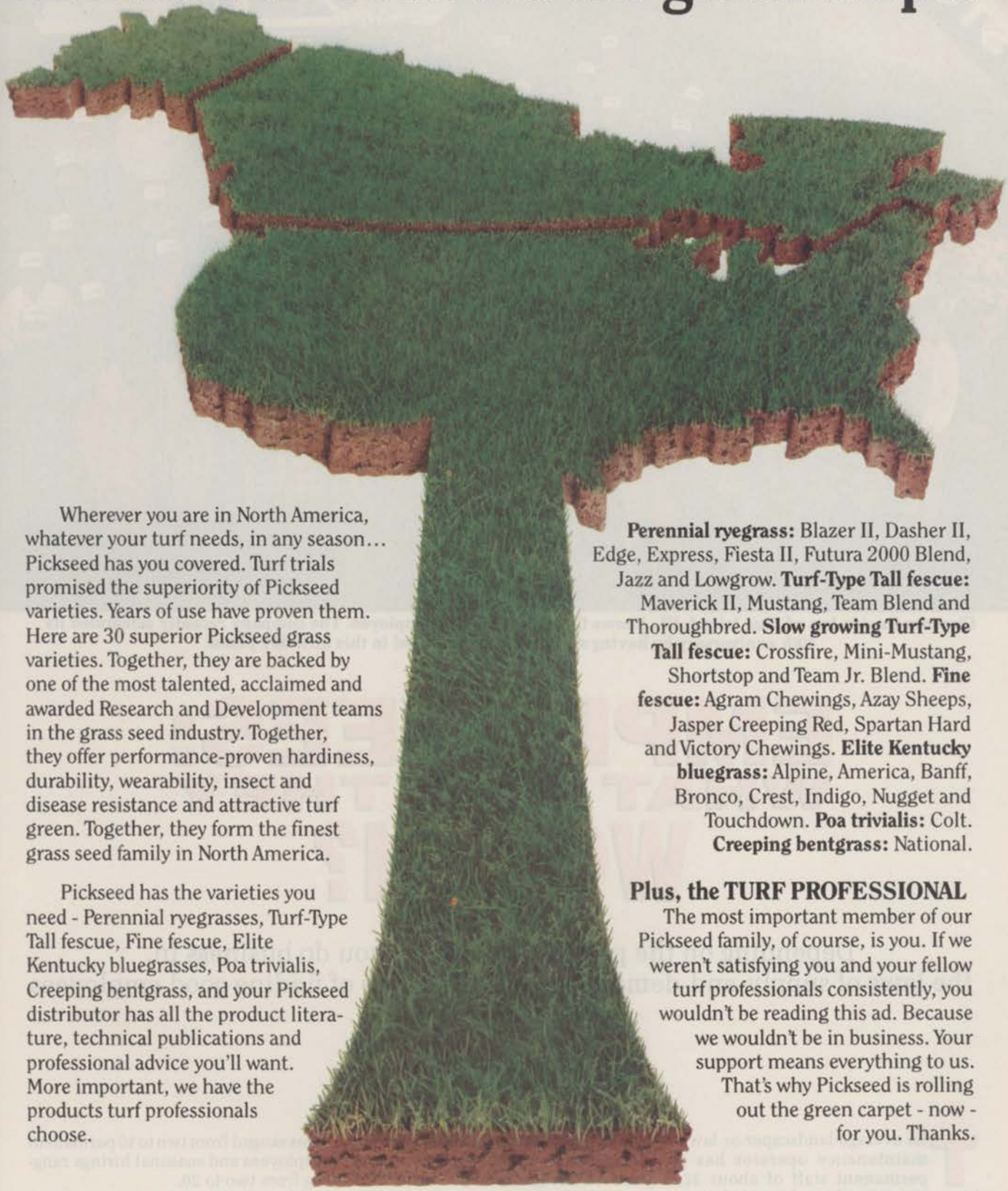
I WANT TO EXPAND MY HORIZON! Please send more information about PGMS.

Name _____ *City and State* _____

Company _____ *Zip Code* _____

Street _____ *Area Code/Phone #* _____

PICKSEED® rolls out the green carpet



Wherever you are in North America, whatever your turf needs, in any season... Pickseed has you covered. Turf trials promised the superiority of Pickseed varieties. Years of use have proven them. Here are 30 superior Pickseed grass varieties. Together, they are backed by one of the most talented, acclaimed and awarded Research and Development teams in the grass seed industry. Together, they offer performance-proven hardiness, durability, wearability, insect and disease resistance and attractive turf green. Together, they form the finest grass seed family in North America.

Pickseed has the varieties you need - Perennial ryegrasses, Turf-Type Tall fescue, Fine fescue, Elite Kentucky bluegrasses, Poa trivialis, Creeping bentgrass, and your Pickseed distributor has all the product literature, technical publications and professional advice you'll want. More important, we have the products turf professionals choose.

Perennial ryegrass: Blazer II, Dasher II, Edge, Express, Fiesta II, Futura 2000 Blend, Jazz and Lowgrow. **Turf-Type Tall fescue:** Maverick II, Mustang, Team Blend and Thoroughbred. **Slow growing Turf-Type Tall fescue:** Crossfire, Mini-Mustang, Shortstop and Team Jr. Blend. **Fine fescue:** Agram Chewings, Azay Sheeps, Jasper Creeping Red, Spartan Hard and Victory Chewings. **Elite Kentucky bluegrass:** Alpine, America, Banff, Bronco, Crest, Indigo, Nugget and Touchdown. **Poa trivialis:** Colt. **Creeping bentgrass:** National.

Plus, the TURF PROFESSIONAL

The most important member of our Pickseed family, of course, is you. If we weren't satisfying you and your fellow turf professionals consistently, you wouldn't be reading this ad. Because we wouldn't be in business. Your support means everything to us. That's why Pickseed is rolling out the green carpet - now - for you. Thanks.

PICKSEED®
PICKSEED WEST Inc.
P.O. Box 888 • TANGENT, Oregon 97389 • U.S.A.
(503) 926-8886

Circle No. 128 on Reader Inquiry Card

COVER STORY

Clarence Davids Inc. of Blue Island, Ill., knows the value of a good employee. The company recently celebrated its 40th anniversary by having all its workers included in this birthday photo.

EMPLOYEES: WHAT ARE THEY WORTH?

Depending on the part of the country you do business in, the laws of supply-and-demand govern the value of finding good employees and keeping them.

by Jack Simonds, contributing editor

The average landscaper or lawn maintenance operator has a permanent staff of about 32, hires 30 seasonal workers and pays seasonal help about $6.23 an hour.

Those are among the findings in a seven-point random telephone poll to 21 landscape and lawn care operations throughout the United States.

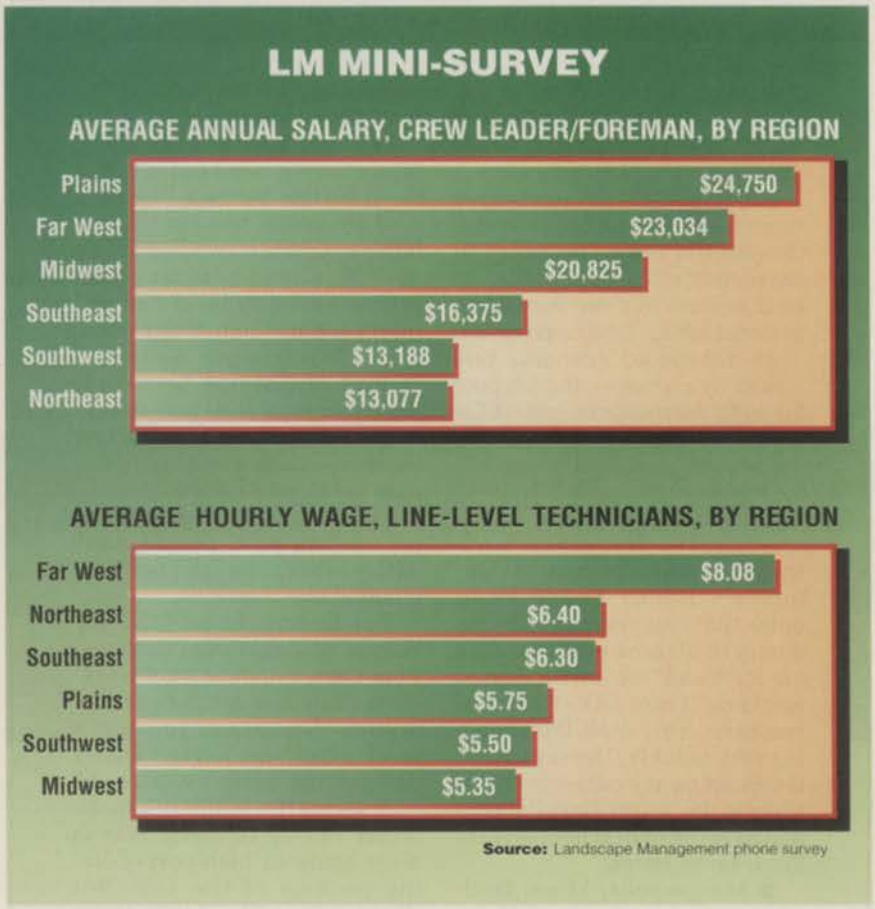
Different sizes were chosen when contacting green industry businesses.

Landscape firms ranged in annual gross earnings from $3 million or more employing up to 120 permanent staff and 220 seasonal hirings to firms with five permanent staff, six seasonal hirings and annual gross earnings between $100,000 and $250,000.

In the LCO category, annual gross earnings were not available, but staff sizes ranged from two to 10 permanent employees and seasonal hirings ranging from two to 20.

The poll shows the average nationwide salary for a crew leader is about $14,405, a scale which fluctuates greatly between regions.

The Plains States leads all regions with an average supervisor or crew leader salary of $24,750. The Far West



closely trails at $23,034. In descending order are the Midwest, $20,825; the Southeast, $16,375; the Southwest at $13,188 and the Northeast at $13,077.

These figures combine those responding in both landscaping and LCO categories.

In hourly wages, the Far West—California, Oregon and Washington—leads the nation with an $8.08 average hourly rate for seasonal workers. That average is followed by the Northeast, $6.40; the Southeast, $6.30; the Plains States, $5.75; the Southwest, $5.50 and the Midwest, $5.35.

No employer we spoke with reports paying only the federal minimum wage, which will rise from $3.80 to $4.25 on April 1. The largest hourly seasonal wage we found is $11 in Southern California. The smallest is $4.75 from a New England company.

The LCO market

Neal DeAngelo, 1991 president of the Professional Lawn Care Association of America (PLCAA) says the organization addresses itself to pay scales, benefits issues and the traditional high turnover rate in the industry when members meet in educational sessions at its national convention.

He says that where pay scales may easily vary between regions of the country, so too will both the job pool and the availability of good staffers, factors which can influence pay scales.

"There are pockets throughout the country where (the job pool picture) is entirely different than other areas," DeAngelo says.

The job pool base, which in part may serve to dictate hourly rates in an area, not only can vary from place to place, but also year to year; a fluctuation not lost on the PLCAA president.

Like colleagues across the country, DeAngelo, an operator of a lawn care company in Hazelton, Pa. since 1978, has seen the job pendulum swing at his own business.

"Within our own company, two years back we had a rough time. You'd have a classified ad in for an eternity and get very little response to it. Last year we had no problems with available help," he says.

Other LCOs and landscapers across the country give mixed reports of the labor force in their area (see related story.)

DeAngelo also feels some confidence for the industry as the national economy experiences a recession of varying intensity from region to region.

The lawn maintenance industry, he recalls, survived nicely, even "boomed" during the early 1980s mini-recession.

"It was one of the biggest boom times in the industry," DeAngelo says, speculating that homeowners then spent more time at home, paying more attention to maintenance and cosmetics of their properties. He says also that people traveled less and tended to forestall purchasing big ticket items.

"Lawn care is not a big ticket item (and) people put more time and effort into their homes (in recession)," says DeAngelo.

The landscape market

Eldon Dyk, 1991 president of the Associated Landscape Contractors of America (ALCA), sees an overall shortage trend for entry-level workers.

"And I'd say the (short) labor supply will be pretty much all over the country," Dyk says, "although some areas will be affected more than others.

"The availability is not as it used to be," he adds.

In hourly landscaping crew wages, the Far West—California, Oregon and Washington—leads the nation with an $8.08 average hourly rate.

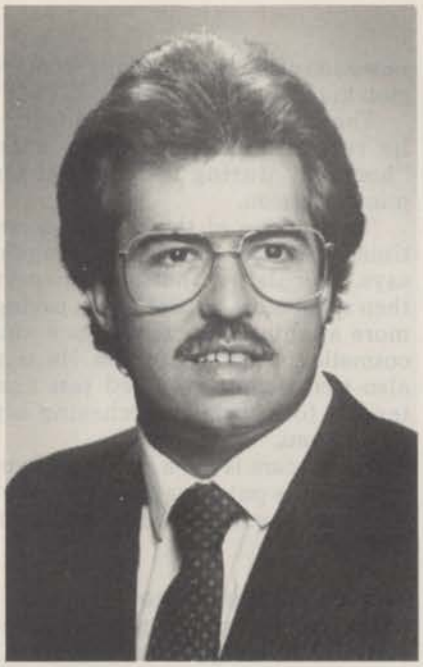
Dyk points to two factors in the labor shortage: fewer young people (18 to mid-20s) in the population and greater competition from national fast food restaurants and other chains.

Also, Dyk notes that pools of migrant and other foreign workers are dwindling as well.

Readjusting entry-level wages should be discussed, something the ALCA's Crystal Ball Committee is undertaking now.

Extending health benefits to line workers also is discussed by industry watchers which "immediately raises the cost of doing business," says Dyk.

Benefits, entry-level wages and the labor pool combine to form the "crunch



Neal DeAngelo: no 'big ticket'

Eldon Dyk: 'crunch issues'

issues" before the industry as the country look toward Recession, 1991.

Dyk, operator of a landscaping firm in Denver, Colo., says his area—including Texas, Oklahoma and other oil-dependent state economies—has been in a slowdown for five years.

In that time, he learned some lessons.

"You have to do business a little differently. You operate in a different mode: cutting back on overhead and staff and tightening your belt," Dyk says.

Still, Dyk believes, landscaping overall "looks good."

"You simply have to be more conscious of costs in order to survive well," he says. **LM**

GLUT OR SHORTAGE?

◊*Warwick, Rhode Island landscaper Gary Rouvelas at Garden Hills Florists, Inc. puts it bluntly: "We've got the pick of the litter."*

◊*In Danville, Calif., landscaper Roger Fiske of Fiske Landscaping, chooses the word "horrible" to characterize the availability of good workers to draw from when seasonal hiring time approaches.*

In a national economy tarnished by recession, the job pool for both landscapers and LCOs seems dictated by the slowing economy's effect in the immediate region.

Consider:

- Winchester, Mass. landscaper Brent Totman at Mahoney's Rocky Ledge Farm notes that two years ago the industry in his area was "standing on its head" to attract good workers. "I now have a stack of resumes on my desk. It is changing very quickly," he says. Also, landscaping as a career is beginning to be more heavily promoted at the high school level in his area, he notes.
- Minneapolis, Minn. landscaper Charles Glossop of Green Masters Industries nearly always enjoys success with walk-in-off-the-street workers for operations in Minneapolis proper—but has difficulty acquiring workers in affluent suburbs where the job market is more competitive.

Rural Minnesota LCO Thomas Rieff of Crystal Lawn Service in North Mankato submits a different picture. "It is tough," he says, "to offer only seasonal (employment) to people looking for permanent positions."

- Fiske thinks response to classified ads is a good barometer. Five years ago, he says, such an ad would net up to 80 calls a day. "Now we get maybe eight calls, and if five who are qualified will take the job, we're lucky," he says.
- Mixed reports emerge from the nation's breadbasket. Nebraska LCO Steve Brownrigg at Down to Earth Lawn Care sees the labor pool in his area as "good relative to other states" but adds he has difficulty securing "qualified, thinking people willing to work outdoors."

Billings, Montona's Jay Wirth of Wirth Landscaping notes his labor pool is a tiny one, but he enjoys drawing from a rural population where he says the work ethic is strong.

His only real labor problem: "Sometimes it is just trying to find the skills that we need," he says.

If recurring themes do surface nationwide, two seem to be the difficulty in attracting good permanent entry level staff and then keeping them. Englewood, Colo. landscaper Shannon Wilson of Natural Surroundings, Inc. says she, her partner and three permanent staffers recently held a meeting just to discuss those very issues.

"What can be frustrating is not having good people hang with you long enough to get promoted," she laments.

For Greely, Colo. LCO Jay Woods at American Turf and Tree Care, securing good workers is a catch-as-catch-can proposition. "Sometimes you land a good one," he says. "Other times it just doesn't work out."

It seems the industry's traditional vexing turnover rate is more acute in high cost-of-living pockets of the U.S. But Clearwater, Fla. landscaper Christopher Phillips of Landscape Technologies, Inc. reports a different picture.

"I know that labor shortages are supposed to be the problem of the '90s, but we don't have any problem getting help. But we're lucky, we're in a good labor pool," he says.

South Florida LCO Bill Lester of Lawn Care Plus says when he needs more manpower, he relies on a system of contacts built up over the years and easily secures good people for short-term work.

These snags, however, continue to be the difficulty in attracting newcomers either seasonally or as permanent beginning staff primarily because of the low entry-level pay scale and the lack of benefits in many cases. The labor-of-love aspect of lawn maintenance and landscaping might be best seen in the thoughts of Salem, Ore. landscaper Tony DeSantis of DeSantis Landscapes.

"Finding dependable people with a work ethic gets tougher all the time," he says. "The work is hard, you get dirty and you're out in the weather."

—Jack Simonds□

Turfcat's 4WD redefines upward mobility.

- *On-demand 4WD system with differential lock delivers hill climbing power with less scuffing.*
- *High capacity, deep tunnel decks deliver both mowing quality and productivity.*
  - *60" or 72" side or rear discharge rotaries.*
  - *60" fine-cut flail.*
- *Front-mounted implements powered by efficient, hydraulic PTO Drive.*
- *Power steering reduces operator fatigue.*
- *Controls within easy reach.*
- *Choice of high-back suspension seats for all day comfort.*

Introducing the new, 4WD Turfcat.®

The 4WD Turfcat T422D climbs steep hills* with just a flip of a switch. For better side hill traction, a step on a pedal engages the differential lock.

Unlike some mechanical versions, the Turfcat's hydraulic drive system also maintains constant 4WD in turns. Tire slip is reduced to maintain quality turf without scuffing.

The Turfcat's wide track stance and low center of gravity provide superior stability going uphill or down.

A two speed transaxle lets you match the Turfcat's speed to your job. Low gear provides more torque to the cutting deck, while the hydrostatic drive lets you change mowing speeds to match conditions. High gear provides faster transport speed between jobs.

Dependable hydraulic systems.

Best of all, the Turfcat gives you a new generation of reliability with our exclusive, hydraulic 4WD and hydraulic PTO. Systems that do away with a host of moving parts. The results are smoother operation and longer life with dramatically less maintenance.

Choose the Turfcat you need: a 22 HP diesel in 2WD or 4WD or a 36 HP gas engine in 2WD.

See your distributor today for a demonstration. Find out how you can improve your upward mobility.

JACOBSEN
TEXTRON
Jacobsen Division of Textron Inc.

Circle No. 111 on Reader Inquiry Card

*Consult your operator's manual for safety instructions when mowing hills.

©Jacobsen Division of Textron Inc. 1990

Control insects and mites without disturbing homeowners.

Mavrik® is gentle on birds, bees and other beneficials. In fact, no other broadspectrum insecticide is gentler.

Mavrik is also non-restricted, effective at low rates, and non-phytotoxic. There isn't even an offensive odor to alarm neighbors.

So when you control insects and mites with Mavrik, you can rest easy. And so can the neighborhood.

MAVRIK

Insecticide/Miticide

SANDOZ CROP PROTECTION

Use pesticides effectively. Read and follow label directions carefully.
Mavrik is a registered trademark of Sandoz, Ltd.
© 1991 Sandoz Crop Protection Corporation.

Circle No. 138 on Reader Inquiry Card

Jacobsen Crew King

Gravely Pro Series

Howard Price Turf Blazer

WALK OR RIDE?

The landscape manager must make that decision before purchasing the appropriate mowers for his or her immediate needs.

by Jack Simonds, contributing editor

For lawn maintenance companies, it's decision time, as the rider vs. walk-behind mower purchase nears. Both have advantages and both have a niche in the mid-size lawn mower market.

"Walk-behinds give a good value for a lower price," says Howard Price of Howard Price Turf Equipment. Traditionally cheaper, and believed to be more maneuverable than riders, walk-behinds still offer situations where "certain people will want to step up to riders when the job gets bigger," Price admits. "But there's room in the market for both."

Encore Manufacturing's Dean Meyer agrees. The firm makes a line of walk-behinds and also two styles of sulkies which in some instances can provide the best of both worlds.

"A sulky can make it (a walk-behind) a pretty efficient rider," says Meyer. "But I think landscapers have a variety of different needs," he adds. For the price of one rider, in some instances, the smaller operator can pick up two walk-behinds, but other situations simply call for riders.

Here, then, is a sampler of some new walk-behinds and riders for 1991.

Jacobsen Turf Equipment boasts of its expanded Crew King line with sizes ranging from 32 to 60 inches and coming in floating deck and four fixed deck models.

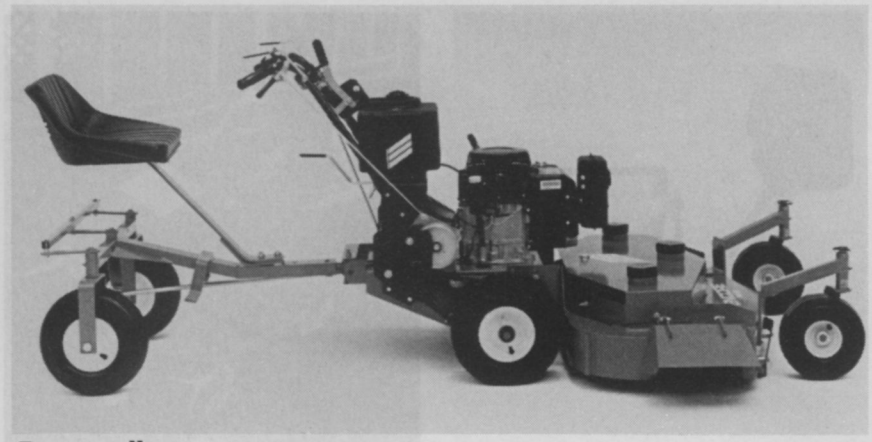
Floating deck mowers, with 36- and 48-inch models available, have a suspended cutting deck which the company says floats over uneven surfaces, yielding a smooth finish. Two Crew King fixed deck models have been added to the line including a 32- and 60- inch mower. Jacobsen has 36- and 48- inch fixed deck models.

Gravely International's re-designed Pro Series commercial mowers are easier to operate and perform better,

John Deere mid-sized front loader

Walker rider

Toro walk-behind



Encore sulky

Homelite mulching mower

Scag walk-behind

according to the company.

The front-mount walk-behind line sees a second drive belt added to prevent side slippage in wet conditions. Two belts spaced apart bar grass build up and heavy duty control linkage is also standard. The gas tank holds 3.5 gallons and handlebars have been widened. The line has a five-speed gear transmission, adjustable mower decks and instant forward and reverse. Powerplants include 12 and 12.5 hp gas engines. Thirty-two- and 36- inch decks are available. Heavy duty models come in 12.5, 14, 16, 17, and 18 hp motors and 36-, 40-, 50- and 60- inch mowing decks.

From **Howard Price Turf Equipment** comes 36- and 48-inch walk-behinds with both low and high gear, double-belt drive and a 9.5 bushel grass catcher. Equipped with a 3.5 gallon tank, both models come with reverse and easy height adjustment.

John Deere's two new offerings are 17.5 and 20 hp riders with the home and commercial market in mind.

A hydrostatic transmission operates by two foot pedals and cutting height is adjustable by a front crank system.

Equipped with power steering, model F710 comes with a 48-inch mower; model F725 with a 54-inch mower.

Walker Manufacturing's GHS commercial rider model has a new blower system designed to reduce clogging and enhance vacuuming.

The model, designed for smaller landscaped areas, offers a Delco maintenance-free battery as standard equipment. Walker says the rider fits into today's landscaping plans for smaller green spots and the unit's maneuverability and running speed should make it competitive with walk-behind models.

A hydrostatic drive option has been introduced in **Toro**'s 14 and 18 hp walk-behind Pro-Line, the company announces.

Hydrostatic drive, Toro says, should improve traction because with no belts involved in the drive system, slipppage does not occur. Also, like other lines, Toro offers zero-radius turning and instant reverse.

Other new products and features from Toro include a 21-inch Recycler ProLine walk-behind a 48-inch recycler deck for both walk-behind and riding models and a recycling kit for 32-inch walk-behinds.

Toro's new 724-Z rider can cut up to 25 acres a day, the company says.

Encore Manufacturing announces a sulky to convert any size Pro-Line walk-behind into a rider. Encore says the sulky features an advanced tracking system which puts mower controls within easy reach. The attachment is independently adjustable and is equipped with pneumatic tires, spring suspension and a quick release hitch for conversion back to a walk-behind.

Scag Power Equipment introduces new 36- and 48-inch cutter decks for its zero-turn walk-behind. The line, winner in the overall excellence category at the 1990 International Lawn, Garden and Power Equipment Expo in Louisville, Ky., also includes 52-, 61- and 72-inch cutter decks.

From **Homelite** comes a new lightweight mulching mower designed for home use. With a 5 hp electric start engine, the model features a 20-inch mulching deck and twin multi-level blade design for a double cut.

Homelite already markets 4 and 5 hp mulching mowers with pull starting systems.

Also new to Homelite's line is a three-way convertible mower which comes as a side-discharge model. Kits

Ford Holland rider with hopper

Excel rider with edger

Ariens mowing system

are available for both mulching or addition of a 2.25 bushel rear bag collector.

Ford Holland's models CM224 and CM274, both commercial riders, may now be equipped with a 17-barrel capacity hopper which may be raised up to 73 inches for dumping. The hydraulic system is operated from the driver's seat and is designed to service trailers or pickup trucks. For on-site composting, the system can form two layers, making handling of materials easier, Ford Holland says.

The manufacturer also offers two new triple-bag grass collection systems. The 9.75 barrel capacity bushel bags is bolted to the tractor by a subframe and the hood flips forward for bag removal.

The **Grasshopper Co.** features a line of six riders, all with zero-radius turning and dual-hydrostatic direct drive. Models in the Gemini series range from 18 to 25 hp and are available in air- and liquid-cooled gas engines or diesel engines. Mowing deck sizes range from 44 to 72 inches.

Excel's Hustler Compact Series features an edger attachment, mulching capability and vacuuming collection systems which hold up to eight bushels of debris.

Designed with estates, apartment complexes, condominiums and other landscapes in mind, Excel compact riders are with 18 and 20 hp powerplants and 51- or 60-inch mowing decks.

From **Ariens** comes several walk-behind choices, notably the introduction of what the company calls a mowing system. Equipped with a 5 hp engine, the new offering mulches, recycles or collects trimmings depending on standard equipment used during mowing. Also an optional dethatcher and mulching enhancer are available. Ariens manufactures a full line including riders and accessory power lawn care gear. **LM**

RIDE A WALKER

Discover Fast, Competitive, Profitable Mowing

Most commercial mowing operations are using walk-behind mowers because they have concluded no rider mower is compact or maneuverable enough to mow landscaped areas. Now maintenance operators all across the country are discovering the compact, maneuverable *Mid-Size Walker Mower* fits their job and saves labor (usually cuts labor 1/2). The labor saving *Walker* looks good whether your business is trying to produce profit or is operating on a budget. Write or call for a free brochure. Ask for a demonstration.

Walker Manufacturing Company, 5925 E. Harmony Road, Ft. Collins, Co 80525 · 1-800-279-8537

Circle No. 149 on Reader Inquiry Card

Service. You give it to your customers and you expect it from your suppliers.
We understand how important service is to you. That's why you can depend on Special Products for prompt delivery, quality products, answers to your technical questions, experienced sales representatives and an organization from top to bottom that puts you first.
"Great Service." It sets you apart from your competition. It sets us apart from our competition.

SPECIAL PRODUCTS
A UAP COMPANY
ON THE MOVE

Circle No. 143 on Reader Inquiry Card

© 1991 CIBA-GEIGY Corporation, Turf and Ornamental Products, Box 18300, Greensboro, NC 27419. Always read and follow label directions.

THE ONLY OTHER ACTIVE INGREDIENTS YOU'LL NEED TO HELP PREVENT 12 MAJOR TURF DISEASES.

It's as effective a fungicide as you can buy. Banner® lasts for up to 4 weeks, at rates of only 1-2 ounces per thousand square feet.

To make the most of it, however, proper diagnosis is crucial. So, too, is a complete understanding of your golf course's disease history.

Knowing this, you can vary individual doses to precisely what you need.

Want the cost savings of prescriptive control? Get Banner. As they say, it's a no-brainer.

Circle No. 108 on Reader Inquiry Card

POST-EMERGENCE WEED CONTROL IN WARM-SEASON GRASSES

Post-emergence herbicides provide the turfgrass manager with viable options to control weeds during the entire year.

by Tim R. Murphy, Ph.D., University of Georgia

Weed control is the process of limiting a weed infestation so that a turfgrass can properly grow, develop and be aesthetically appealing.

A balanced turfgrass weed control program uses a combination of cultural, mechanical and chemical weed control practices. When properly maintained, warm-season turfgrasses are highly competitive with weeds. Adherence to recommended fertility programs, water requirements, mowing heights and schedules and controlling diseases and insects will dramatically improve the success of the chemical weed control program.

The use of herbicides, in the absence of approved cultural and mechanical practices, will not result in a high quality, warm-season turfgrass.

Turfgrass managers can choose from two types of herbicides to control weeds in warm-season turfgrasses. Pre-emergence herbicides form the base of the chemical weed control program. They are primarily used for the control of crabgrass, goosegrass, annual bluegrass and certain annual broadleaf weeds. Post-emergence herbicides are generally used to control weeds that are not controlled by pre-emergence herbicides, or in the event of a pre-emergence weed failure, as a reliable backup.

Post-emergence herbicides offer several advantages over pre-emergents.

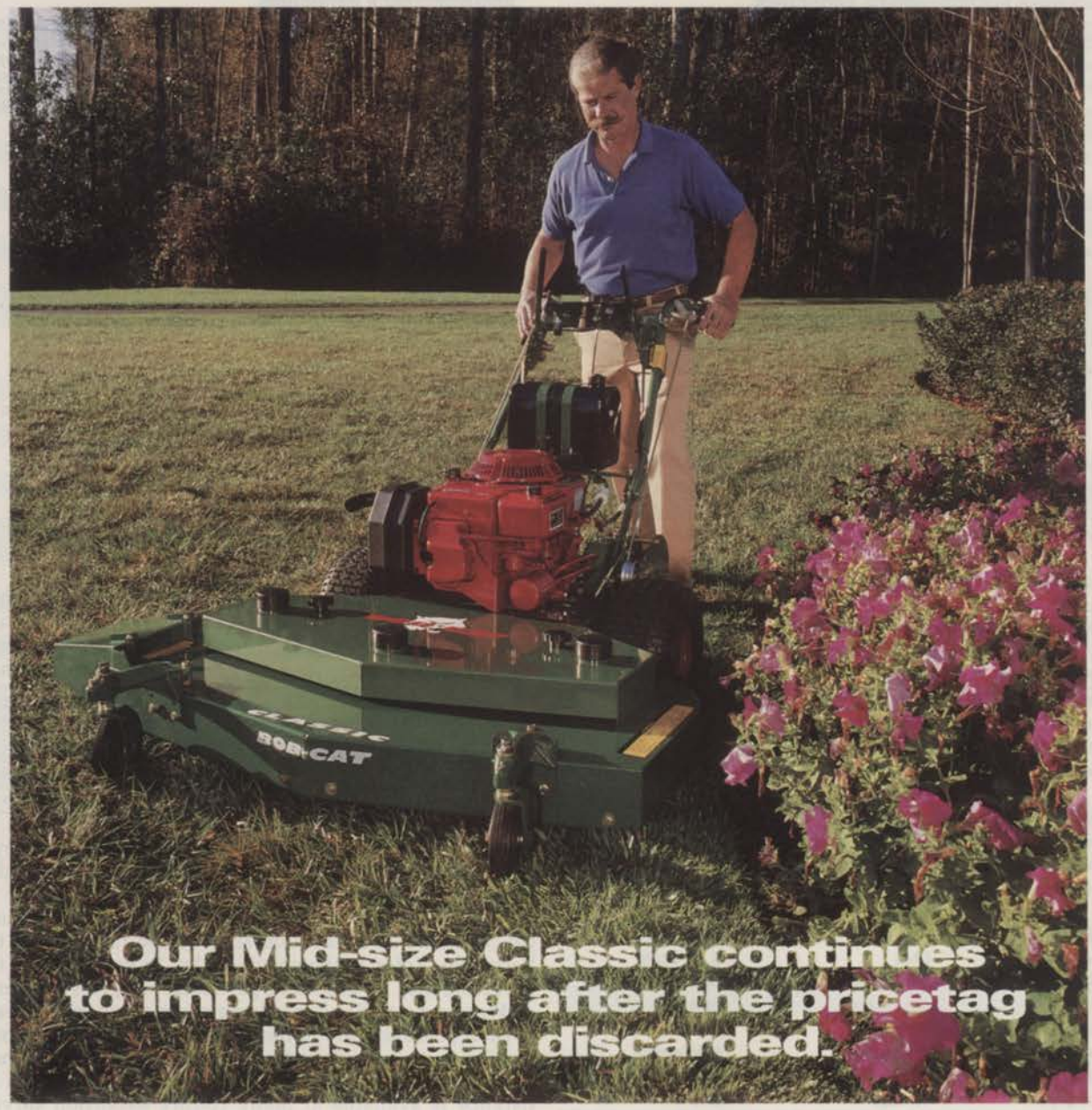
Spot treat, or as needed

Post-emergence herbicides can be applied on a "spot treatment" or "as-needed" basis, directly to a weed infestation; pre-emergence herbicides are usually applied to the entire turfgrass area.

Spot treatments of post-emergence herbicides are less expensive than blanket applications of pre-emergence herbicides. Post-emergence herbicides will control many problem annual and perennial weeds not controlled by pre-emergence herbicides.

Low rates of most post-emergence herbicides may be used on newly-sprigged or sodded warm-season turfgrasses.

In areas that are scheduled to be overseeded or renovated, the majority of post-emergence herbicides can be used up to one month before renovation. The time interval from application to seeding, sprigging or sodding operations for pre-emer-



Our Mid-size Classic continues to impress long after the pricetag has been discarded.

When you can have Ransomes quality at a competitive price, there's no reason to accept second best. ■ The Bob-Cat Mid-Size is a legend in the commercial mowing market and the Classic continues to impress. A true commercial machine throughout, with the "value-added" features you want. ■ Available in 36" and 48" cutting widths and variable speed, the Bob-Cat Classic features a Kohler 12.5 HP overhead valve engine for better fuel economy. Includes wide tires for superior climbing and three grass catcher options. And, it all comes to you at an affordable price, along with 48 hour parts delivery. Guaranteed. ■ Call your Ransomes dealer today or call us at 414-699-2000 to arrange a free demonstration. And step up to the best, a Bob-Cat Classic.

RANSOMES
BOB-CAT®

Where great ideas start.

*Does not include sales tax, freight, or dealer prep; suggested price listed in US dollars. Price may vary with dealer and region.

©RANSOMES INC., A RANSOMES COMPANY, 1991, ONE BOB CAT LANE, JOHNSON CREEK, WI 53038

Circle No. 132 on Reader Inquiry Card

TABLE I. Common and trade names of warm-season turfgrass postemergence herbicides.

Common Name	Trade Name(s)	Company(s)
asulam	Asulox	Rhone-Poulenc
atrazine	Aatrex, Others	Ciba-Geigy, Others
bentazon	Basagran	BASF
bromoxynil	Buctril	Rhone-Poulenc
2,4-D	Numerous formulations are available.	Vertac, Lesco, Fermenta, Others
2,4-D + dicamba	Eight-One, Phenaban 801	Lesco, PBI/Gordon
2,4-D + dichlorprop	Weedone DPC Amine, Weedone DPC Ester	Rhone-Poulenc
2,4-D + mecoprop	Lescopar, Phenomec 2+1, 2 Plus 2	Lesco, PBI/Gordon, Fermenta
2,4-D + mecoprop + dicamba	Trimec Classic, Trex-san, Three-Way	PBI/Gordon, Sierra, Lesco
2,4-D + mecoprop + dichlorprop	Weedestroy Triamine, Weedestroy Tri-Ester	Riverdale
dicamba	Banvel Dicamba 4	Sandoz PBI/Gordon
diclofop-methyl[1]	Illoxan, Hoelon	Hoechst
diquat[2]	Diquat	Valent
DSMA	Numerous formulations are available.	Vertac, Vineland, Others
ethofumesate	Prograss	Nor-Am
fenoxaprop	Acclaim	Hoechst
glyphosate	Roundup	Monsanto
imazaquin	Image	American Cyanamid
mecoprop	Mecomec, Lescopex	PBI/Gordon Lesco
mecoprop + 2,4-D + dicamba	Southern Trimec	PBI/Gordon
MCPA + mecoprop + dichlorprop	Weedestroy Triamine II Weedestroy Tri-Ester II	Riverdale
metribuzin	Sencor Turf	Mobay
metsulfuron	DMC	O. M. Scott
MSMA	Numerous formulations are available.	Fermenta, Platte, Others
MSMA + 2,4-D + mecoprop + dicamba	Trimec Plus	PBI/Gordon
pronamide	Kerb	Rohm-Haas
sethoxydim	Vantage	BASF

[1] *Diclofop-methyl currently has a state label for use in Georgia, Florida and South Carolina. Current labels should be consulted as use directions and trade names varty between states.*
[2] *Diquat has a state label in Arkansas, Louisiana, Mississippi, Oklahoma, Tennessee and Texas for winter annual weed control in dormant bermudagrass.*

Source: The author

gence herbicides varies from 1½ to 4 months.

Herbicide selection

Many post-emergence herbicides are available to control weeds in warm-season turfgrasses (Table 1). They all have different qualities.

Turfgrass tolerance. The warm-season turfgrasses dramatically vary in their tolerance to post-emergence herbicides (Table 2). Bermudagrass has good tolerance to MSMA and DSMA; however, carpetgrass, centipedegrass and St. Augustinegrass are severely injured by these herbicides. With the exception of bahiagrass and carpetgrass, warm-season turfgrasses have excellent tolerance to Image.

Additionally, cultivars within a species may respond

TABLE 2. Warm-season turfgrass tolerance to postemergence herbicides.

	Turfgrasses					
Herbicide	Bahia-grass	Bermuda-grass	Centipede-grass	Carpet-grass	St. Augus-tine grass	Zoysia-grass
asulam	NR-S	T[1]	NR-S	NR-S	T	NR
atrazine	NR-I	I	T	NR-I	T	I
bentazon	T	T	T	NR-I	T	T
bromoxynil	T	T	T	NR-I	T	T
2,4-D	T	T	I	I	S-I	T
2,4-D + dicamba	T	T	S-I	S-I	S-I	T
2,4-D + dichlorprop	T	T	I	I	I	T
2,4-D + mecoprop	T	T	S-I	I	S-I	T
2,4-D + mecoprop + dicamba	I-T	I-T	S-I	S-I	S-I	T
2,4-D + mecoprop + dichlorprop	T	T	I	I	I	T
dicamba	T	T	I-T	I	S-I	T
diclofop-methyl	NR	T	NR	NR	NR	NR
DSMA,MSMA	NR-S	T	NR-S	NR-S	NR-S	I
fenoxaprop	NR-S	NR-S	NR-S	NR	NR-S	T
glyphosate[2]	S(D)	S(D)	S	S	S	S
imazaquin	NR-S	T	T	NR-I	T	T
MCPA + mecoprop + dichlorprop	T	T	I	I	I	T
mecoprop	T	T	S-I	I	S-I	T
metribuzin	NR-I	T	NR-S	NR-S	NR-S	NR-S
metsulfuron	NR-S	T	NR-T	NR	T	NR-T
pronamide	NR-S	T	NR-I	NR	NR-I	NR-I
sethoxydim	NR-S	NR-S	T	NR-I	NR-S	NR-I

T= Tolerant at labeled rates; I= Intermediate tolerance, use at reduced label rates; S= sensitive, do not use this herbicide' D= Dormant; Nr= Not registered for use on this turfgrass.
[1] Labeled only on 'Tifway' (419) bermudagrass and St. Augustinegrass.
[2] Bahiagrass and bermudagrass are tolerant to glyphosate when completely dormant.

Source: The author

differently to the same herbicide. For example, Meyer zoysiagrass has better tolerance to MSMA than Emerald or Matrella.

The most important factor in selecting a post-emergence herbicide is the tolerance of the turfgrass to the herbicide. Refer to the specific label to determine if the herbicide may be used on a particular turfgrass species.

Weed species. Similar to turfgrasses, weed species vary in their susceptibility to herbicides. Correct weed identification is a prerequisite for selecting an appropriate herbicide. Weed identification manuals and identification assistance is available at many county extension service offices. Several chemical companies also distribute excellent weed identification guides.

Time of application. The time of year that a herbicide is applied can influence turfgrass tolerance. For example, dormant bahiagrass and bermudagrass have excellent tolerance to Roundup. However, severe injury will occur if this herbicide is applied to semi-dormant or actively-growing bahiagrass or bermudagrass.

The risk of injury from post-emergence herbicides is also greater during the spring green-up process (transition from winter dormancy to active growth) than when the turfgrass is fully dormant or actively growing.

Post-emergence herbicides such as 2,4-D + mecoprop + dicamba (Trex-san, Trimec Classic, Three-Way and others) have been shown to slightly decrease the quality of Tifway bermudagrass when applications were made three weeks before or during spring green-up. Image can also cause slight to moderate delays in green-up if applications are made during spring transition.

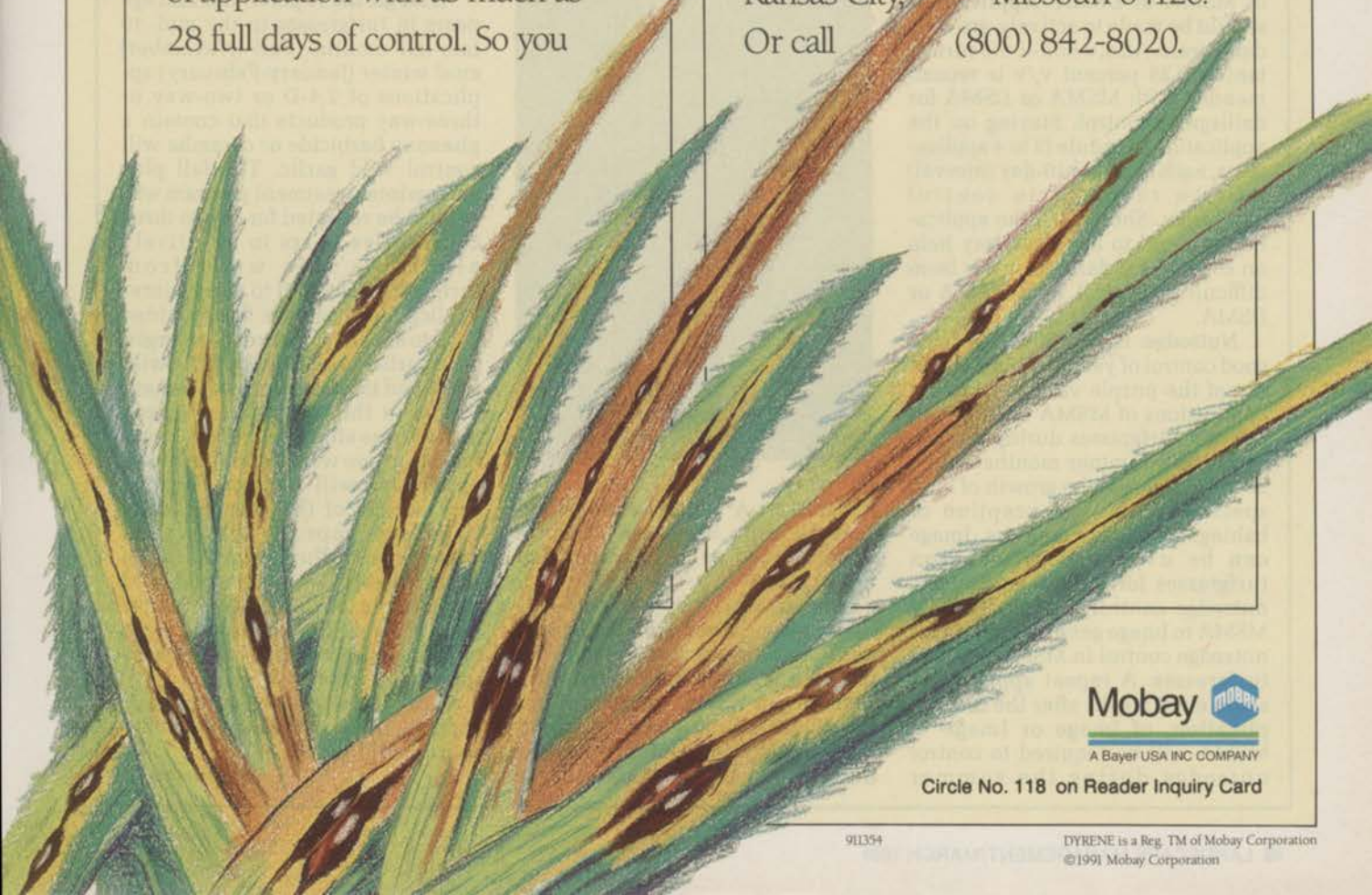
Research has shown that the decrease in turfgrass quality that may result from using post-emergence herbicides

IT'S EASY TO SPOT A LAWN THAT HASN'T BEEN TREATED WITH DYRENE.

Leaf spot is a dead give-away for any lawn that's been treated with something other than DYRENE® Fungicide. That's because only DYRENE can give you this kind of effective, long-lasting protection.

In fact, DYRENE widens your window of application with as much as 28 full days of control. So you have the time to reach all your customers before the leaf spot takes hold, or spreads out of control.

Ask your distributor about DYRENE today. Without it, you could find yourself in a pretty tight spot. For more information, contact Mobay Corporation, Specialty Products Group, Box 4913, Kansas City, Missouri 64120. Or call (800) 842-8020.



Mobay

A Bayer USA INC COMPANY

Circle No. 118 on Reader Inquiry Card

911354

DYRENE is a Reg. TM of Mobay Corporation
©1991 Mobay Corporation

during green-up persists for two to six weeks after application. Also, in turfgrasses that are severely infested with weeds, better turfgrass growth eventually results due to the elimination of the thick cover of weeds.

In the event that a dense weed population necessitates using a post-emergence herbicide during green-up, use only the lowest recommended or one-half the recommended rate. Low or one-half rates will minimize herbicide injury to the turfgrass.

Application frequency. For some weed species, a repeat application is necessary to effectively control the weed. For example, two applications of MSMA + Sencor, at a 7- to 10-day interval, are necessary to control goosegrass. In contrast, small crabgrass can often be controlled with a single application of MSMA. However, large, well-tillered crabgrass usually requires two applications of MSMA or DSMA, each at a 7- to 10-day interval.

Ornamental tolerance. Turfgrass herbicides are commonly applied to sites containing ornamental plantings. Ornamentals may be injured by spray or vapor drift or by root absorption of the herbicide. Vapor drift is the movement of herbicide vapors from the intended site of application.

Ester formulations of the phenoxy herbicides (2,4-D, dichlorprop) easily volatize during warm temperatures and can injure sensitive ornamentals by vapor drift. Ester formulations

Problem weed management

Bahiagrass: Repeat applications of MSMA or DSMA at 7- to 10-day intervals will control bahiagrass in MSMA/DSMA tolerant turfgrasses. In bermudagrass and St. Augustinegrass, DMC will effectively control bahiagrass. In centipedegrass, repeat application of Vantage (formerly Poast) at 10- to 14-day intervals will suppress bahiagrass growth and seedhead development.

Dallisgrass: It is believed that most pre-emergence herbicides will control dallisgrass that arises from seed.

Established dallisgrass can be controlled in bermudagrass or zoysiagrass with repeat applications of MSMA or DSMA. Applications should be made to actively-growing dallisgrass. Also, a non-ionic surfactant at 0.25 percent v/v is recommended with MSMA or DSMA for dallisgrass control. Staying on the application schedule (2 to 4 applications, each at a 7- to 10-day interval) will be required to control dallisgrass. Shortening the application interval to five days may help on sites where dallisgrass has been difficult to control with MSMA or DSMA.

Nutsedge: Basagran will provide good control of yellow nutsedge, but not of the purple variety. Monthly applications of MSMA or DSMA in tolerant turfgrasses during the late spring and summer months can be used to suppress the growth of both species. With the exception of bahiagrass and carpetgrass, Image can be used in warm-season turfgrasses for yellow and purple nutsedge control. The addition of MSMA to Image generally improves nutsedge control in MSMA tolerant turfgrasses. A repeat application, six to eight weeks after the first application, of Image or Image + MSMA will be required to control nutsedge during the summer months.

Prostrate spurge: Control requires repeat applications of two-way or three-way broadleaf herbicides. In bermudagrass, low rates of Sencor (0.125 to 0.25 lb. AI/acre) will effectively control emerged prostrate spurge.

Virginia buttonweed: Rapidly becoming the number one problem broadleaf weed in southern

turfgrasses. A warm-season perennial, Virginia buttonweed reproduces by seed, cut plant pieces, and fleshy roots.

Research has shown that 2,4-D + dichlorprop (Weedone DPC amine and ester) has provided better Virginia buttonweed control than other two-way or three-way broadleaf herbicides. Monthly applications of 2,4-D + dichlorprop will be needed during the summer months to suppress the growth of Virginia buttonweed. Research conducted in Mississippi has shown that applications of Ronstar or Princep at the time of the 2,4-D + dichlorprop application increased the control of Virginia buttonweed.

The increase in control with Ronstar and Princep is believed to be the control of Virginia buttonweed plants that arise from seed. Turfgrass managers should be aware that Princep is not labeled on southern turfgrasses in the months of June, July and August. However, depending upon the geographical location, a mid-April or May application of Princep may assist in the control of Virginia buttonweed.

Wild garlic: A perennial that appears in turfgrasses in the mid- to late-fall months. Fall (November) amd winter (January-February) applications of 2,4-D or two-way or three-way products that contain a phenoxy herbicide or dicamba will control wild garlic. The fall plus early winter treatment program will need to be repeated for two to three consecutive years to effectively eliminate this weed from turfgrasses. Late fall to early winter applications of Image has provided good to excellent control of emerged wild garlic. Image slowly kills wild garlic and treated plants will remain visible in the turfgrass for an extended time after application. Mowing one to two weeks after the Image application will remove a significant portion of the wild garlic foliage and improve the overall appearance of the turfgrass. Image should be applied to emerged wild garlic in the late fall or early winter fter the first killing frost or the onset of winter dormancy of the warm-season turfgrass.

In St. Augustinegrass and bermudagrass, DMC will also effectively control wild garlic.

—*Dr. Murphy*□

"This Baby Will Steal Your Heart."

"When you put as much into something as I have with this new 30-H, it gets close to you. But I think it's the kind of machine you're going to love. It's got a Yanmar diesel that turns out 30 horses for all the power you'll ever need. The 72" deck gives you the big cut you want for wide area mowing. Talk about smooth. The hydrostatic transmission really gets the job done. And our special rear-wheel steering leaves a "0" uncut circle. Naturally, the 30-H has all the dependability we build into every Gravely. Let me tell you, this baby will steal your heart."

Ask your local Gravely dealer to introduce you to the powerful, new 30-H today. GRAVELY.

Larry Miller, Director of Engineering
Gravely International, Inc.
Clemmons, North Carolina

Fall In Love With A Gravely

Gravely International, Inc., P.O. Box 5000, One Gravely Lane, Clemmons, NC 27012 • 919-766-4721 • Telefax: 919-766-7545

Circle No. 221 on Reader Inquiry Card

Suggestions for use

Post-emergence herbicides are applied after annual weeds emerge or when new growth of perennial weeds appear in the turfgrass. Follow these guidelines for better weed control and improved turfgrass tolerance.

1. Small, actively-growing weeds.

Perennial and annual weeds that are growing under good soil moisture conditions at moderate air temperatures are easier to control with post-emergence herbicides than weeds that are stressed due to adverse environmental conditions. Target the application to coincide with good soil moisture conditions at air temperatures of 60 to 90°F. Applications on cold, wintery days, or to drought-stressed weeds will result in poor weed control.

2. Do not apply post-emergence herbicides to turfgrasses and weeds that are stressed due to high air temperatures or drought.

The tolerance of warm-season turfgrasses to post-emergence herbicides decreases at air temperatures greater than 90°F, and when turfgrasses are drought-stressed. Additionally, turfgrasses growing under high soil moisture, high relative humidity and high air temperatures, (less than 90°F) have a lower level of tolerance to post-emergence herbicides than turfgrasses growing under similar moisture and humidity conditions but at cooler temperatures.

Herbicides that contain 2,4-D; dicamba; mecoprop; dichlorprop; MSMA and DSMA should not be applied at high air temperatures since there is a high risk of increased turfgrass injury.

Follow label guidelines.

3. Repeated applications at low rates will generally improve weed control and turfgrass tolerance.

Single applications at high rates generally cause more turfgrass injury than repeat applications at low rates. Additionally, single, high rate applications often do not contorl the weed, particularly perennial weeds. The repeat application is usually made at intervals of 7 to 14 days after the first application, or when regrowth of the weed is noted. Refer to the label for information regarding repeat treatments.

4. Coordinate mowing schedules.

A general recommendation is to delay mowing three to four days before or after a post-emergence herbicide application. The delay prior to application will increase the leaf surface area of the weed and result in better spray coverage and control. The delay after application is necessary to allow adequate time for herbicide absorption and translocation in the target weed species.

5. Do not apply post-emergence herbicides immediately before rainfall or irrigation.

The effectiveness of most post-emergence herbicides is better when rainfall or irrigation does not occur for 6 to 24 hours after application. Rainfall or irrigation immediately after application can wash the herbicide from the treated weed foliage and decrease control.

6. Use surfactants and crop oil concentrates according to label directions.

The effectiveness of many post-emergence herbicides is enhanced by the addition of a crop oil concentrate or surfactant to the spray mixture, particularly under less than ideal spray conditions. However, indiscriminate use of surfactants or crop oil concentrates can increase the risk of turfgrass injury. Check the label for crop oil guidelines.

7. Calibrate spray equipment, train operators.

Weed control failure can be linked to improper calibration of spray equipment.

The tolerance of warm-season turfgrasses rapidly decreases at elevated or higher-than-recommended rates of post-emergence herbicides. Training assistance is available through most county extension service offices and spray equipment company representatives.

—Dr. Murphy□

should not be used during the warm months of the year when environmental conditions are favorable for volatilization. Spray drift damage can be minimized by spraying when the wind velocity is less than 5 mph, and selecting a nozzle tip and spray pressure that produces large spray droplets.

Due to their soil residual characteristics, Aatrex and dicamba (Banvel, Dicamba 4) can injure broadleaf ornamentals via root uptake. Injury to ornamentals is most likely to occur on sandy soils when a heavy rainfall immediately follows application of these herbicides. The potential of these herbicides to injure ornamentals via root uptake can be prevented by avoiding their use over the rootzone of shrubs and small trees.

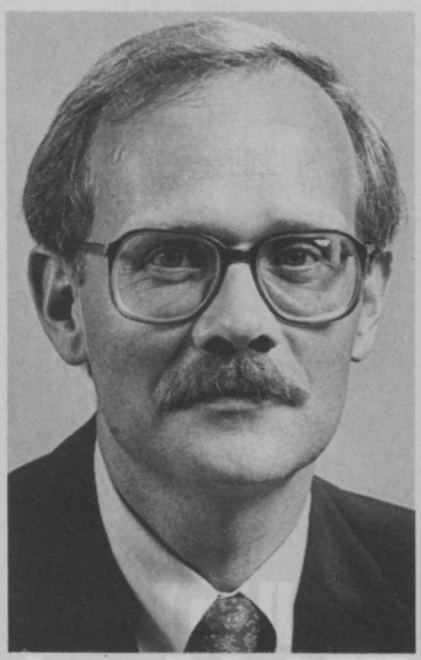
Spring break important

Post-emergence herbicide use should be avoided during the spring transition of warm-season turfgrasses and during periods of extremely high air temperatures.

winter, late spring and early summer months. The majority of turfgrass post-emergence herbicides are more effective when applied to small weeds than when applied to large weeds. Waiting until weeds are in advanced growth stages will usually require that the highest recommended rate be used, and often, a repeat application.

In the event of a pre-emergence herbicide weed control failure, post-emergence herbicides can be relied upon for a complete chemical weed control program. Due to the necessity of repeat applications and temporary turfgrass injury, most managers prefer to use a combination of pre-emergence and post-emergence herbicides to control turfgrass weeds.

Cultural practices that favor vigorous turfgrass growth, the use of pre-emergence herbicides at recommended times of the year, and timely use of post-emergence herbicides will enable the turfgrass manager to achieve the goal of a high quality, attractive turfgrass that is relatively weed-free. **LM**



Agronomist Tim R. Murphy specializes in weed science at the University of Georgia Cooperative Extension Service.

It's only a matter of time

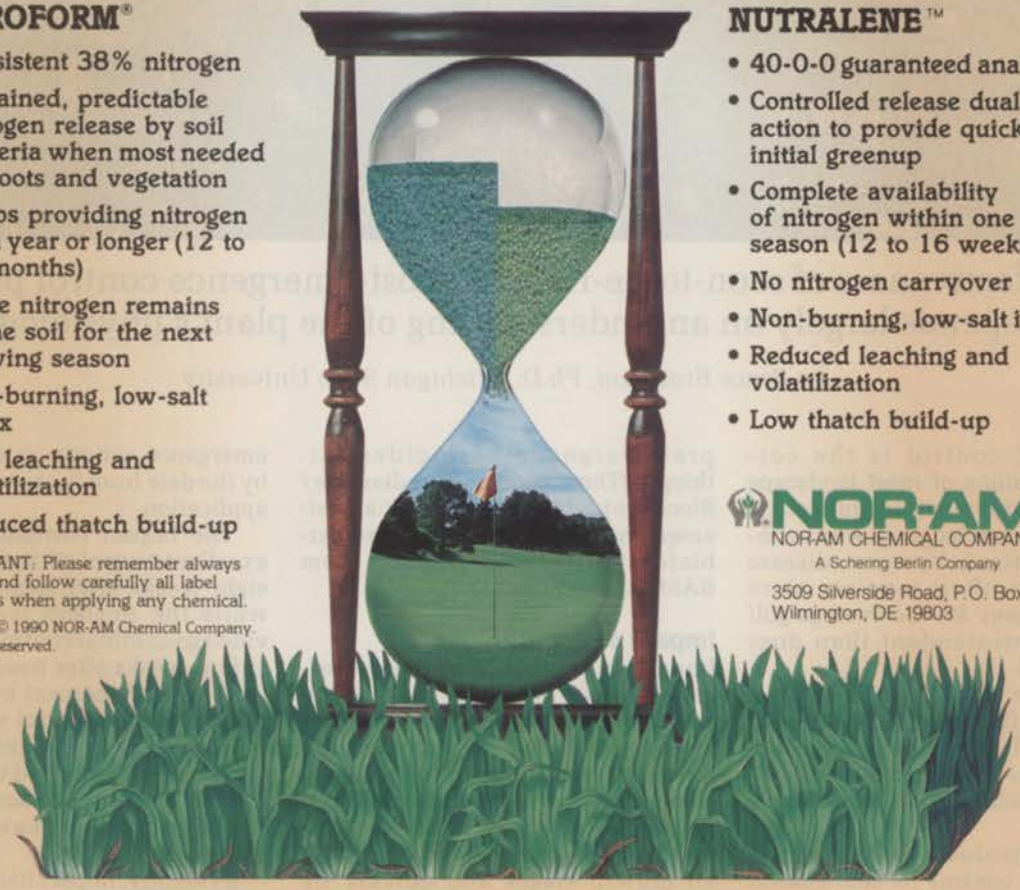
You know that good turf deserves the best forms of nitrogen. That's why you need slow-release NITROFORM® and controlled-release NUTRALENE™, two superior formulations that cater to your specific nitrogen needs.

With NITROFORM,® nitrogen is released slowly throughout the growing season and remains available to roots for one year or longer–when other nitrogen sources have been used up. Ideal for sandy soils where low micro-organism levels and leaching are often a problem. It also works well in clay soils since it stimulates micro-organisms that decompose thatch. Available in both dry and liquid formulations and applied at recommended rates with conventional equipment, NITROFORM won't burn top-growth or roots. So treated turf is subjected to less stress. As a result, it grows stronger and needs fewer pesticide applications.

With dual-action NUTRALENE,™ you can count on quick grass greenup in spring plus sustained release throughout one growing season. Unlike other controlled-release nitrogens, NUTRALENE is not solely dependent upon soil temperatures, moisture, coating or particle size for its optimum release pattern. Applied in chip or granular form, the dual release of NUTRALENE encourages outstanding growth response–even in early spring or late fall. In hot weather, its reduced leaching characteristics enable uniform, sustained feeding to continue.

NITROFORM®

- Consistent 38% nitrogen
- Sustained, predictable nitrogen release by soil bacteria when most needed by roots and vegetation
- Keeps providing nitrogen for a year or longer (12 to 16 months)
- Some nitrogen remains in the soil for the next growing season
- Non-burning, low-salt index
- Low leaching and volatilization
- Reduced thatch build-up



NUTRALENE™

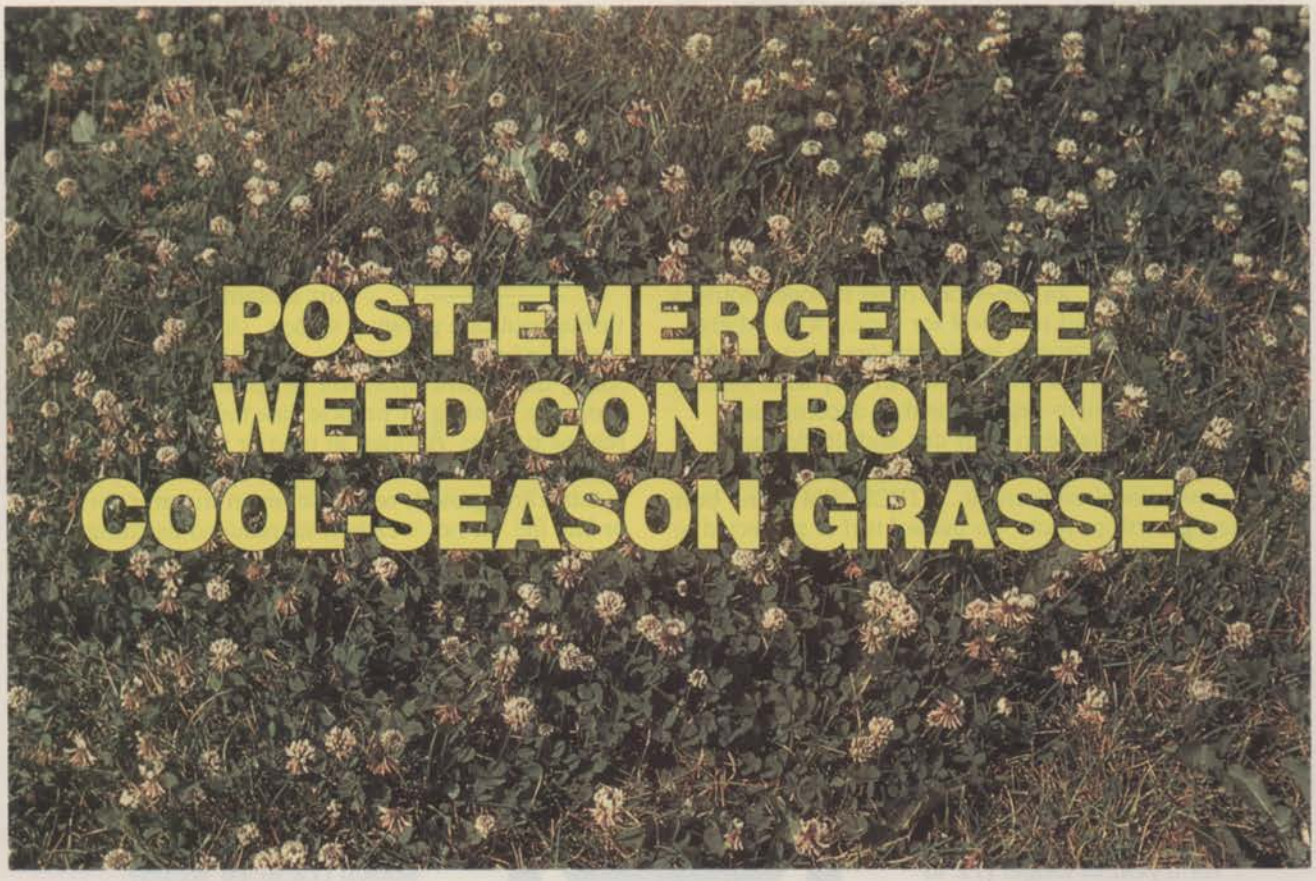
- 40-0-0 guaranteed analysis
- Controlled release dual action to provide quick initial greenup
- Complete availability of nitrogen within one season (12 to 16 weeks)
- No nitrogen carryover
- Non-burning, low-salt index
- Reduced leaching and volatilization
- Low thatch build-up

IMPORTANT: Please remember always to read and follow carefully all label directions when applying any chemical.

Copyright© 1990 NOR-AM Chemical Company. All rights reserved.

NOR-AM
NOR-AM CHEMICAL COMPANY
A Schering Berlin Company
3509 Silverside Road, P.O. Box 7495
Wilmington, DE 19803

Now's the time to rely on NITROFORM® and NUTRALENE™ for high quality Nitrogen.



POST-EMERGENCE WEED CONTROL IN COOL-SEASON GRASSES

The effectiveness of soon-to-be-released post-emergence control products depends largely on an understanding of the plant's physiology.

by Bruce Branham, Ph.D., Michigan State University

Weed control is the cornerstone of most landscape management. In golf course operations, knowledge of weed control is important; however, disease management often requires more time and money for the average golf course superintendent than does weed control.

Regardless of the type of turf you manage, it is important to understand weed control principles, so that the decisions you make are economical, environmentally sound and produce good results.

No new products for post-emergence weed control in cool-season grasses have been introduced in the past year, although we are still waiting on the EPA to approve three turf herbicides. Two of those products are pre-emergence herbicides (dithiopyr/Dimension and prodiamine/Blockade) while the other is a post-emergence grass and broadleaf herbicide (quinclorac/Impact) from BASF Ag products.

Impact of Impact

Impact is an excellent post-emergence grass herbicide with good activity on a number of broadleaf weeds as well. Data in Table 1 shows the effectiveness of this product when compared to other commonly used post-emergence grass herbicides. Impact controls crabgrass effectively at all growth stages and quickly by providing rapid initial burndown of the crabgrass. Impact also has some rapid initial burndown of the crabgrass. Impact also has some pre-emergence activity as demonstrated by the date from the two- to three-leaf application.

The Impact treatments provided excellent control (99 to 100 percent) at eight weeks after treatment (WAT), while the Acclaim treatment provided good initial control—87 percent at four weeks after treatment, which fell to only 51 percent by eight WAT.

This loss of control with Acclaim indicates that new germination of crabgrass had occurred to reinfest the treated area which occurs because Acclaim does not have pre-emergence activity.

Evidently, Impact had enough pre-emergence activity to provide control for the rest of the growing season. However, applications of Impact applied at the normal time for a pre-

TABLE 1. Effect of Impact on post-emergence crabgrass control in Kentucky bluegrass turf.

Treatment	Rate (1bs AI/A)	% Control	
Growth Stage: 2-3 leaf		4 WAT	8 WAT
Appl. date: 6-14-90			
Impact + BAS 090	0.75 + 1qt/A	100 a	99 ab
Impact + BAS 090	1.0 + 1qt/A	100 a	100 a
Dimension	0.38	90 a-d	94 a-c
Acclaim	0.18	87 a-e	51 d-h
Control		0	0
Growth Stage: 2-3 tillers		4 WAT	9 WAT
Application Date: 7-10-90			
Impact + BAS 090	0.75 + 1qt/A	100 a	97 ab
Impact + BAS 090	1.0 + 1qt/A	100 a	100 a
Acclaim	0.18	96 a-d	77 b-d
Daconate 6	2 + 2	93 b-d	88 a-d
Dimension	0.38	72 ef	82 a-d
Control		0	0

emergence herbicide have not given season-long crabgrass control. Impact has also been shown to provide effective control of broadleaf weed species such as white clover, black medic, field bindweed, spurge, and some veronica (speedwell) species.

Currently available herbicides for post-emergence control are shown in Table 2. Impact is not expected to be available until at least 1992.

Dimension's residual

Dimension is an excellent pre-emergence herbicide. But as the data in Table 1 shows, it also has excellent early post-emergence crabgrass activity. However, Dimension's ability to control crabgrass falls off rapidly after crabgrass starts producing tillers.

Formulations of MSMA provide effective weed control if two applications spaced 10 to 14 days apart are made. This product has fallen out of favor with lawn care operators because of the necessity to make repeat applications and because the potential for turf injury is high.

Acclaim: the standard

Acclaim is still the standard to which other post-emergence crabgrass herbicides are compared.

This product will provide very effective crabgrass control when applied on crabgrass with four tillers or less. As crabgrass grows beyond four tillers, control declines. In addition, crabgrass that is drought stressed is also more difficult to control with Acclaim, although this is generally true of all herbicides.

Few non-selectives

The list of herbicides available for non-selective weed control is a short one. Non-selective herbicides are used to control all vegetation and therefore are not normally used in a turf weed control program. These are, however, useful in a variety of situations.

Non-selective herbicides such as Roundup are used to renovate poor quality turf areas. In this situation, Roundup would be applied to the entire area; a seven-day waiting period should be sufficient to kill all vegetation. The area can then be re-established to a more desireable turf species. Non-selective herbicides are useful for edging around trees to prevent mower damage to the trees and for controlling weeds in the cracks of sidewalks, where it is often combined with a pre-emergence herbicide such as Surflan to provide long-term residual weed control. Non-selective herbicides can also be used to control weeds in mulched planting beds or gardens by directing the spray only on the weeds present.

Paraquat, a non-selective contact post-emergence herbicide, does not translocate. It kills only vegetation that it comes in contact with. Thorough spray coverage is required to achieve good control, but because the herbicide does not translocate, it will only kill the green vegetation of the plant. Some plant species can regenerate from the surviving roots and meristems. In addition, paraquat is moderately toxic, with an LD_{50} of 120 mg/kg.

Roundup is translocated throughout the plant. The LD_{50} of Roundup is 7200 mg/kg and is classified as almost non-toxic. Both Roundup and paraquat are inactivated once they contact the soil surface, so reseeding operations can begin very shortly after application.

TABLE 2. Post-emergence broadleaf weed control herbicides used in turf.

2,4-D - 2,4-dichlorophenoxy acetic acid
2,4-DP - 2-(2,4-dichlorophenoxy) propionic acid
MCPA - 2-methyl-4-chlorophenoxy propionic acid
MCPP - 2-(2-methyl-4-chlorophenoxy) peopionic acid
dicamba - 3,6-dichloro-o-anisic acid
triclopyr - 3,5,6-trichlow-2-pyridinyloxy acetic acid
clopyralid - 3,6-dichlow-2-pyridine carboxylic acid

Some commonly used broadleaf herbicide mixtures and the ratio of each product in the mix:

2,4-D + MCPP
2 plus 2 (1/1) Fermenta
Lescopar (1/2) Lesco
2,4-D-MCPP (2/1) Cleary's

2,4-D + dicamba
Phenaban 801 (8/1) Gordons
Eight-one selective herbicide (8/1) Lesco
Riverdale 81 selective weed killer (8/1) Riverdale
Riverdale 101 weed killer (10/1) Riverdale

2,4-D + MCPP + dicamba
Three way selective herbicide (1/0.5/0.009) Lesco
Trimec (1/0.5/0.1) Gordons
Trimec Bentgrass Formula (0.3/1/0.13) Gordons
Trexsan (1.0/0.53/0.13) (Sierra)
Trexsam Bent (0.3/1.0/0.13) (Sierra)

2, 4-D + 2,4-DP
Chipco Weedone DPC ester (1/1) Rhone-Poulenc
Chipco Weedone DPC Amine (1/1) Rhone-Poulenc
Turf D + DP (1/1) [ester] Riverdale

2,4-D + 2,4-DP + MCPP
Weedestroy Triamine (1/1/1) Riverdale
Weedestroy Triester (80.7/1.0/0.7) Riverdale

MCPA + MCPP + 2,4-DP
Weedestroy Triamine II (1/1/1) Riverdale

MCPA + MCPP + dicamba
Trimec Encore (1.0/0.46/0.1) [amine] Gordons

2,4-D = 2,4-DP = dicamba
Super Trimec (1.0/1.0/0.25) [ester] Gordons

2,4-D = tricopyr
Turflon D (2/1) [ester] Dow
Turflon II (2.6/1) [amine] Dow

tricopyr + clopyralid
Confront (3/1) [amine] Dow

Broadleaf options

The list of currently available post-emergence broadleaf herbicide combinations has not changed appreciably from last year. In post-emergence broadleaf weed control, manufacturers tend to sell mixtures of two to three herbicides. Thus, when you are applying an herbicide for post-emergence broadleaf weed control, you are usually using at least two different herbicide products.

The only single herbicide product currently sold is MCPP, which has excellent safety on bentgrass and for that reason is used by many golf courses

TABLE 3. Post-emergence grass and sedge control herbicides.

Common Name	Trade Name	Manufacturer
MSMA	Daconate 6	Fermenta
	Drexar 530	Drexel
	MSMA 6.6	Drexel
DSMA	DSMA Liquid	Riverdale
	DSMA Liquid	Drexel
	Methar 30	W. A. Cleary
	Broadside, DSMA 81%	Vertac
AMA	Super Methar	W. A. Cleary
fenoxaprop	Acclaim	Hoechst-Roussel
bentazon (sedges only)	Basagran	BASF

TABLE 4. Difficult to Control Broadleaf Weeds

Weed Problem	Herbicide	Comments
Wild violets (viola spp.)	Turflon Turflon D Turflon II Weedone DPC Super Trimec	Very difficult to control; usually requires follow-up application 1 to 4 weeks after first application.
Creeping speedwell (veronica filliformis)	Dacthal 75 WP Dacthal 6F Turflon D Super Trimec Weedone DPC	Dacthal is an effective control, as are other products listed. There are 12 other speedwell species and difficulty of conrtol varies. These are beginning to become serious turf weed pests.
Ground ivy (Glechoma hederacea)	Turflon D Super Trimec Weedone DPC	Very difficult to control in summer.
Spurge (supina)	Same as above plus Dacthal, PreM, Team	Can control with spring Euphorbia applications of preemergence herbicides.
Oxalis (stricta)	Same as above except Dacthal	Can control with spring Oxalis applications of preemergence herbicides.
Prostrate knotweed (Polygonum aviculare)	Same as ground ivy	Difficult to control in summer.

Esters and amines

Ester and amine control products have different herbicidal properties which are important to know. Amines are soluble in water; esters are oil-soluble. Esters are generally better herbicides than the corresponding amine product. Esters tend to penetrate into the leaf more effectively than do amines.

The reason that esters are not used exclusively is that they are slightly volatile. This volatility can result in non-target injury to susceptible plants in the landscape. Amines, on the other hand, are non-volatile but not as good as herbicides as the esters.

Thus, you use an amine to avoid the risk of injury that comes when you use an ester. Amines should always be used in the spring when plant material is breaking dormancy, actively growing, and very susceptible to these broadleaf herbicides. Esters can and should be used in the summer when weeds are starting to harden off and are less susceptible to the herbicide, and in the fall when non-target plants are hardening off for the winter and are much less susceptible to injury from volatile broadleaf herbicides.

Effectiveness principles

The factors affecting post-emergence weed control are:

- spray deposition;
- absorption;
- translocation.

Spray deposition and retention are very important factors in getting good post-emergence weed control. Several factors are important in determining spray intention, including spray volume, surface tension of the spray solution, the angle of the leaf and the composition of the cuticle.

Higher sprayer volumes tend to generate larger spray droplets which often may not be retained on leaves. Low spray volumes produce smaller droplets which are more readily retained by plant leaves. However, production of smaller droplets increases the likelihood of the spray drifting onto non-target plants.

Spray solutions with high surface tensions, such as water, may bounce off the leaf surface at impact. Spray solutions that have very low surface tensions may run off the leaf surface and result in little spray retention. Thus, an intermediate surface tension is desirable.

Leaf movement

Nyctinasty is the folding movement of leaves with decreasing light intensity and unfolding with increasing light intensity. Nyctinasty could result in decreased weed control from early morning or late evening applications due to a decrease in spray retention by weed species showing this kind of leaf movement.

Another factor which affects spray retention is the composition of the cuticle. The cuticle refers to a layer of wax, cutin and pectin deposited on the leaf surface. The more lipophilic (i.e. waxier) the leaf surface, the more difficult it is to retain water droplets.

Caution with surfactants

Some applicators always add a wetting agent to a herbicide to improve performance. However, this practice is not advised since unexpected results often occur. For starters, most herbicide manufacturers have some kind of wetting agent in their formulation and you don't need to add one.

The label will tell you under what conditions to add a surfactant. For instance, the Acclaim label suggests adding a wetting agent when the crabgrass is under drought stress. Based on the above discussion, one can see that always adding a wetting agent to Acclaim could result in unacceptable injury to the turf by increasing the absorption of the herbicide to phytotoxic levels under non-drought conditions. Thus, always follow label recommendations. **LM**

Dr. Branham is an associate professor in the Crop and Soil Sciences Department at Michigan State University.

IF THIS YEAR'S PROBLEMS LOOK LIKE THIS:

YOUR SCU FERTILIZATION PROGRAM SHOULD LOOK LIKE THIS:

Keep all your turf problems in line with one of the most diverse SCU fertilizer lines available—Lebanon Pro.

From straight granular fertilizers to combination products that contain today's leading control chemicals, Lebanon's high quality blends deliver the performance you need—predictable growth, even green-up and consistent color.

Our SCU products are carefully selected to be uniform in size, to flow freely and evenly, and provide the best possible nutrient distribution. Plus they're supported by a full line of granular control products for straight application.

Every standard formulation in the Lebanon Pro SCU line is stocked and ready, assuring you of product availability—whatever the season. And with our nationwide distribution network you can get the products you need, when you need them most.

For more information on Lebanon Pro SCU fertilizers, contact your local Lebanon sales representative, Lebanon distributor or call 1-800-233-0628.

ASSOCIATE MEMBER
PLCAA

Lebanon Pro

The Season-To-Season SCU

Lebanon
TURF PRODUCTS

© 1990 Lebanon Turf Products

Circle No. 113 on Reader Inquiry Card

PRICING FOR PROFIT II

Break out your calculators! In Part II, the author explains different methods of pricing based on targeted return on investment.

by Travis Phillips, Ph.D.,
Mississippi State University

The "targeted return on investment" approach to pricing provides a means for allocating overhead. It is based on beginning with pricing to meet a targeted return on investment (ROI).

The procedure provides an estimate that covers all costs including overhead plus the pre-selected return on equity. The procedure has been widely supported by the Association of Landscape Contractors of America (ALCA). Broader and more varied applications are presented by Tucker in his book "Pricing for Higher Profits." Although the procedure is no cure-all, it does provide a framework for using already available accounting data.

Projecting income

In order to get a specific price based on ROI, the income statement for the year ahead must first be projected. This is necessary in order to arrive at the price based on conditions *when the service will be performed.*

For a business engaged only in landscape construction, landscape maintenance, or retail nursery sales, departmental accounting is probably not worthwhile. However, since many horticulturally-related businesses offer all these products and services, I shall assume a three-activity firm.

The basis for projecting the income statement is the previous year's income statement, being sure to consider coming trends. If the previous year was abnormal, adjustments will be necessary.

Table 1 reflects the income statements for contracting and merchandising. The contracting department (landscape construction) was chosen for detailed illustration purposes. However, the same analysis was applied to the service department (maintenance) and merchandising (garden center).

TABLE 1

Past year's income statement, by departments

Item	Department			
	Contract	Service	Merchandise	Total
Sales	$292,011	$90,849	$175,702	$558,562
Beginning invent.	32,273	5,691	32,608	64,881
Purchases	95,841		91,142	192,674
Ending inventory	36,250	5,691	31,034	67,284
Cost of goods	91,861		92,716	190,271
Gross Profit	200,147	85,158	82,986	82,986
Expenses				
Contracting Supp.	5,757			5,575
Vehicles	14,227	14,227	1,000	29,454
Equipment rental	2,303			2,303
Salaries	109,605	51,054	46,610	202,269
Advertising	1,964		4,583	6,547
Repairs	1,341	1,340		2,681
Rent	7,174	1,000	4,026	12,200
Taxes-payroll	9,126	4,250	3,464	16,840
Taxes-property	1,332	184	743	2,259
Depreciation	10,355	7,141	357	17,853
Utilities	4,384	877	12,274	17,535
Dues & subscript.	474		475	949
Buying expenses	85		85	170
Credit card disc.	262		786	1,048
Pro. fees	5,444	158	286	5,888
Insurance	8,264	3,849	3,138	15,251
Office supplies	2,587	892	1,706	5,185
Net interest	3,051	1,052	2,012	6,115
Miscellaneous	554	191	364	1,109
Total expenses	188,289	86,215	76,909	351,413
Profit	11,289	(1,057)	6,077	16,878

Begin the process of projecting the next year's income statement based on a targeted ROI by re-classifying items on the income statement for the previous year. The data in Table 2 are the classified cost items for the contracting department as shown in Table 1.

Direct and overhead costs

Two major classifications are direct costs (those costs which are a direct function of the product or service) and overhead costs (those which do not vary with the volume of sales).

The overhead category is further divided into variable and fixed costs. Variable overhead costs fall between direct and overhead fixed. These costs vary somewhat in direct relationship to the volume of sales. If possible, this group of costs should perhaps be charged directly to the product or activity.

The data in Table 3 represent regrouped data from Table 2. Costs of goods have been shifted from the accounting format to an item of direct costs.

Consider net worth

The next item of information needed is an estimate of the owner's equity—or net worth—for the next year.

Suppose balance sheet values have been assigned to the three departments the same way as the departmental income statements. Then, each department gets its pro rata share of equity based on book value of equity.

TABLE 2

CONTRACTING DEPT. : income statement for past year by classified costs

Item	Direct Cost	Overhead Costs Variable	Fixed	Total
Sales				$292,011
Beginning invent.				32,273
Purchases				95,841
Ending inventory				36,250
Cost of goods				91,864
Gross Profit				200,147
Expenses				
Contracting Supp.		—$5,757	—	$5,757
Vehicles	$11,327		$2,900	14,227
Equipment rental	2,303			2,303
Salaries	79,605		30,000	109,605
Advertising		1,964		1,964
Repairs		1,341		1,341
Rent			7,174	7,174
Taxes-payroll	6,426		2,700	9,126
Taxes-property			1,332	1,332
Depreciation			10,355	10,355
Utilities			4,384	4,384
Dues & subscript.			474	474
Buying expenses		85		85
Credit card disc.		262		262
Professional fees		0	5,444	5,444
Insurance		4,524	3,740	8,264
Office supplies		2,587		2,587
Net interest			3,051	3,051
Miscellaneous		554		554
Total expenses	99,661	17,074	71,554	188,289
Profit				11,858

TABLE 3

CONTRACTING DEPARTMENT: Income statement for past year

Item	Dollars	Percent of Sales
Sales	292,001	100.00
Direct costs		
Cost of goods (materials)	91,864	
Vehicles	11,327	
Equipment rental	2,303	
Labor	79,605	
Labor burden	6,426	
Total direct	191,525	65.59
Overhead costs		
Variable		
Contracting supplies	5,757	
Advertisement	1,964	
Repairs	1,341	
Buying expense	85	
Credit card discounts	262	
Insurance	4,524	
Office supplies	2,587	
Miscellaneous	554	
Total variable	17,074	5.85
Fixed		
Vehicle insurance	2,900	
Administrative salaries	30,000	
Salary burden	2,700	
Rent	7,174	
Property tax	1,332	
Depreciation	10,355	
Utilities	4,384	
Dues and insurance	474	
Professional fees	5,444	
Insurance	3,740	
Interest	3,051	
Total fixed	71,554	24.50
Total overhead	88,628	30.35
Net profit	11,858	4.06

TABLE 4

CONTRACTING DEPT. : Projected income statement for next year by classified costs

Item	Dollars	Percent of Sales	Percent of Exposure
Sales	343,627	100.00	
Direct costs			
Cost of goods (mat.)	108,105		
Vehicles	13,329		
Equipment rental	2,710		
Labor	93,679		
Labor burden	7,562		
Total direct	225,385	65.59	100.00
Overhead costs			
Variable			
Contracting supp.	6,778		
Advertisement	2,312		
Repairs	1,579		
Buying expense	100		
Credit card disc.	309		
Insurance	5,326		
Office supplies	3,046		
Miscellaneous	652		
Total variable	20,102	5.85	8.92
Fixed			
Vehicle insurance	3,248		
Admin. salaries	33,600		
Salary burden	3,024		
Rent	8,035		
Property tax	1,492		
Depreciation	11,597		
Utilities	4,410		
Dues and subsc.	531		
Professional fees	6,097		
Insurance	4,189		
Interest	3,417		
Total fixed	80,140	23.32	35.56
Tot. overhead	100,242	29.17	44.48
Net profit	18,000	5.24	

Equity then needs to be adjusted to current market value so that the selected return is comparable to the best possible earnings on this sum of money if it were invested elsewhere.

Suppose that the book value of the equity in the contracting department is $95,000. However, some assets appreciated, some fully depreciated. A conservative estimate of market value of equity is assumed to be $120,000.

Add previous year data

After estimating equity for the next year, data for the previous year are used along with budgeted fixed costs and targeted profit to find the sales to substain fixed cost and profits. The historical relationship for direct costs and variable overhead, along with the projected fixed overhead and profit, generate the projected income statement.

Suppose that we select a 15 percent ROI as a goal. Profit then would be estimated at:

$120,000 × .15 = $18,000

Fixed costs last year were $71,554 and are expected to increase by 12 percent next year;

The total percent of sales figure is called the marginal ratio, or the amount of each dollar needed to cover fixed costs and profit. If these percentages of sales reflect trend, we use the marginal ratio in the next step. If not, we use a trend line to arrive at a representative value.

We now have the basis for completing the next year's income statement (Table 5). Direct cost items are increased by the same percentage amount that sales for the next year are projected to increase above sales for the previous year. Variable overhead costs are expected to maintain the same proportional relationship as for the previous year. Since fixed overhead costs were projected to increase by 12 percent over the previous period, each cost item in this group is multiplied by 1.12. Profit is the goal of $18,000.

$71,554 x 1.12 = $80,140
Profit plus fixed costs to be covered are:
$18,000 ROI
80,140 Fixed cost
$98,140 Total
From the previous year's records, we find the following:

	DOLLARS	% of sales
Fixed cost	71,554	24.50
profit	11,861	4.06
		28.56

Sales required to meet the targeted ROI

$$\frac{\text{Budgeted Fixed Cost + Profit}}{\text{Marginal Ratio}}$$

$$\frac{\$80,140 + \$18,000}{.2856} = \$343,627$$

Subtotals

Next, the subtotals of costs are first calculated as a percent of sales. Of course, direct and overhead variable costs maintain the same percentage relationship to sales as for the previous year unless adjustments were made in the marginal ratio. Overhead fixed and total overhead costs and profits as a percent of sales change

TABLE 5

SERVICE DEPT. : Income statement for past year by classified costs

Item	Direct Cost	Overhead Costs Variable	Overhead Costs Fixed	Total
Sales				$90,849
Purchases				5,691
Cost of gds.				5,691
Gross Profit				85,158
Expenses				
Vehicles	$11,327		$2,900	$14,227
Salaries	41,054		10,000	51,054
Repairs		$1,340		1,340
Rent			1,000	1,000
Taxes-payroll	3,400		850	4,250
Taxes-prop.			184	184
Depreciation			7,141	7,141
Utilities			877	877
Pro. fees			158	158
Insurance		1,508	2,341	3,849
Office supp.		892		892
Net interest			1,052	1,052
Misc.		191		191
Total exp.	55,781	3,913	26,503	86,215
Net profit				(1,057)

TABLE 6

SERVICE DEPARTMENT: Income statement for past year

Item	Dollars	Percent of Sales
Sales	90,849	100.00
Direct costs		
Cost of goods	5,691	
Vehicles	11,327	
Labor	41,054	
Labor burden	3,400	
Total direct	61,472	67.66
Overhead costs		
Variable		
Insurance	1,508	
Office supplies	892	
Repairs	1,340	
Miscellaneous	191	
Total variable	3,931	4.33
Fixed		
Vehicle insurance	2,900	
Admin. salaries	10,000	
Salary burden	850	
Rent	1,000	
Property tax	184	
Depreciation	7,141	
Utilities	877	
Professional fees	158	
Insurance	2,341	
Interest	1,052	
Total fixed	26,503	29.17
Total overhead	30,434	33.55
Net profit	(1,057)	(1.16)

TABLE 7

SERVICE DEPT. : Projected income statement for next year by classified costs

Item	Dollars	Percent of Sales	Percent of Exposure
Sales	132,750	100.00	
Direct costs			
Cost of goods	8,316		
Vehicles	16,551		
Salaries	50,988		
Labor burden	4,968		
Total direct	98,823	66.67	100.00
Overhead costs			
Variable			
Insurance	2,204		
Office supplies	1,303		
Repairs	1,958		
Miscellaneous	279		
Total variable	5,744	4.33	6.39
Fixed			
Vehicle insurance	3,248		
Admin. salaries	11,200		
Salary burden	952		
Rent	1,120		
Property taxes	206		
Depreciation	7,998		
Utilities	982		
Pro. fees	177		
Insurance	2,622		
Interest	1,178		
Total fixed	29,683	22.36	33.05
Tot. overhead	35,427	26.69	39.44
Net profit	7,500	5.65	

from the values of a year earlier.

A new column called percent of exposure is added. These are calculated as a percentage of total direct costs. This value means that total direct costs must be marked up nearly 44.5 percent in order to break even if about $343,600 in sales are achieved.

An example

Let's examine the procedure used to reach a bid price which meets the goal of 15 percent ROI.

Suppose the proposed job contains $10,000 of direct costs (materials, labor, etc.).

Overhead mark-up to direct job cost:

$10,000 × 1.4448 = breakeven price

Target price = profit + breakeven

Target price − profit = breakeven

Profit may be expressed as target price × profit as percent of sales which in this case is 5.24 or .0524. Substituting, we get:

Target price − .0524 target price = breakeven

.9476 target price = breakeven

Target price = breakeven/.9476

$14,448/.9476 = 15,247

Check:

$15,247 − $14,448 = $799

$799/15,247 = 5.24%

Alternative: (Adjust exposure factor for profit)

1.4448/.9476 = 1.5247

Illustrating with the job containing $10,000 direct costs:

$10,000 × 1.5247 = $15,247 target price

Material	$5,000
Labor & other direct costs	5,000
	10,000
$10,000 x 1.5247 = $15,247	

		% of sales
Fixed cost	$26,503	29.17
Profit	(1,507)	(1.16)
		28.01

Adjustment:

Material $5,000 x 1.20 = $6,000

Labor, etc. 5,000 x y = 9,247

15,247

$5,000y = $9,247

y = 1.8494

$15,247 - 6,000 = 9,247

Material markup fixed

Often it is not possible to markup some of the materials to achieve the firm's goal. When this is the case, other direct costs must be marked up more to compensate.

Suppose we have the following situation:

However, materials can only be marked up 20 percent instead of the 52.47 percent needed for targeted profit.

Therefore, labor and other direct costs must be marked up by 1.8494 instead of 1.5247 when they carry equal weights in total direct costs.

The service department

The past year's income data are contained in Tables 5 and 6.

Next year's income statement was projected on basis of a 15 percent return on equity with a market value of $50,000. Fixed costs in the department were also expected to increase by 12 percent.

Since profits in the previous year were negative, the negative value is used in calculating the marginal ratio:

Sales for the next year were projected as $132,750 = ($29,683 + 7,500)/.2801. The next year's income statement is contained in Table 7.

Another strategy often used in pricing results when one item of direct costs greatly dominates, or when a major cost item such as labor maintains a fixed relationship to the other direct costs. When this is the case, this key factor may be used for bidding or pricing rather than using all direct costs.

The 1.4779 is multiplied by the ap-

With All The Abuse Your Turf Takes, Who Needs Root Pruning?

You know the story. The guys who swing an iron the way a lumberjack wields an ax are the same guys who yell the loudest when weeds give them a bad lie. So, with all the abuse your turf takes, the last thing you need is root-pruning from your herbicide. That's why you need CHIPCO® RONSTAR® brand G herbicide. University root pull studies show that CHIPCO® RONSTAR® G works without pruning turf roots. That means healthier roots and stronger, more durable turf. Best of all, just one pre-emergence application provides season-long control of 25 tough broadleaf and grassy weeds —including goosegrass, crabgrass and Poa Annua.

You'll also appreciate the fact that CHIPCO® RONSTAR® G won't leach out or move laterally through the soil and is labeled for use on a wide variety of ornamentals, so you can keep more of your course weed-free with each application. CHIPCO® RONSTAR® brand G herbicide. It can't improve the quality of play on your course, just the quality of weed control.

Chipco® Ronstar® G

Brand Herbicide

RHÔNE-POULENC

Rhone-Poulenc Ag Company, 2 T.W. Alexander Drive, Research Triangle Park, NC 27709. For additional information, please call: 1-800-334-9745. As with any crop protection chemical, always read and follow instructions on the label. CHIPCO and RONSTAR are registered trademarks of Rhone-Poulenc. © 1990 Rhone-Poulenc Ag Company.

Circle No. 134 on Reader Inquiry Card

TABLE 8

MERCHANDISING DEPT. : Income statement for past year by classified costs

Item	Direct Cost	Overhead Costs Variable	Fixed	Total
Sales				$175,702
Begin. inventory				32,608
Purchases				91,142
Ending inventory				31,034
Cost of goods				92,716
Gross Profit				82,986
Expenses				
Vehicles	$800		$200	$1,000
Salaries	31,610		10,000	41,610
Advertising		$4,583		4,583
Rent			4,026	4,026
Taxes-payroll	2,614		850	3,464
Taxes-property			743	743
Depreciation			357	357
Utilities			12,274	12,274
Dues & subsc.			475	475
Buying expenses		85		85
Credit card disc.		786		786
Professional fees			286	286
Insurance		1,509	1,629	3,138
Office supplies		1,706		1,706
Net interest			2,012	2,012
Miscellaneous		364		364
Total	35,024	9,033	32,852	76,909
Profit				6,077

TABLE 9

MERCHANDISING DEPARTMENT: Income statement for past year

Item	Dollars	Percent of Sales
Sales	175,702	100.00
Direct costs		
Cost of goods (purchases)	92,716	
Vehicles	800	
Labor	31,610	
Labor burden	2,614	
Total direct	127,740	72.70
Overhead costs		
Variable		
Advertisement	4,583	
Buying expense	85	
Credit card discounts	786	
Insurance	1,509	
Office supplies	1,706	
Miscellaneous	364	
Total variable	9,033	5.14
Fixed		
Vehicle insurance	200	
Administrative salaries	10,000	
Salary burden	850	
Rent	4,026	
Property tax	743	
Depreciation	357	
Utilities	12,274	
Dues and insurance	475	
Professional fees	286	
Insurance	1,629	
Interest	2,012	
Total fixed	32,852	18.70
Total overhead	41,885	23.84
Net profit	6,077	3.46

TABLE 10

MERCHANDISING DEPT. : Projected income statement for next year by classified costs

Item	Dollars	Percent of Sales	Percent of Exposure
Sales	220,189	100.00	
Direct costs			
Cost of goods (purch.)	116,187		
Vehicles	1,002		
Labor	39,612		
Labor burden	3,276		
Total direct	160,077	72.70	100.00
Overhead costs			
Variable			
Advertisement	5,742		
Buying expense	106		
Credit card disc.	985		
Insurance	1,891		
Office supplies	2,138		
Miscellaneous	456		
Total variable	11,318	7.07	7.07
Fixed			
Vehicle insurance	224		
Admin. salaries	11,200		
Salary burden	952		
Rent	4,509		
Property tax	832		
Depreciation	400		
Utilities	13,747		
Dues and insur.	532		
Pro. fees	320		
Insurance	1,825		
Interest	2,253		
Total fixed	36,794	22.99	22.99
Tot. overhead	48,112	30.06	30.06
Net profit	12,000		

For example, we shall use labor:

Sales		**$132,750**
Direct costs	**$8,316**	
Cost of goods	**16,551**	
Vehicles	**59,988**	
Labor	**4,968**	
Labor burden	**89,823**	
Total direct	**5,744**	
Overhead-variable	**29,683**	
Overhead-fixed		**$125,250**
Total costs		**$7,500**

For example, we shall use labor:

$$\frac{\text{Total Direct + Overhead + Profit}}{\text{Total Direct}} = 1.4779$$

propriate total direct cost for the price of the job. However, only labor (labor cost) may be used:

Total direct + overhead + profit ÷ = 2.2129

Thus, the markup is 2.2129 times direct labor instead of using total and direct cost.

Merchandising department

Tables 8 and 9 contain the data for the previous year for the merchandising department. Profit for the year ahead was projected as 15 percent on an equity with a current market vlue of $80,000. Fixed costs were projected to increase by 12 percent.

In order to achieve the $12,000 desired ROI, sales were projected at $220, 189 (Table 10).

For example:

Sales		**$220,189**
Direct costs		
Purchase	**$116,187**	
Vehicles	**1,002**	
Labor	**39,612**	
Labor burden	**3,276**	
Total direct costs	**160,077**	
Overhead-variable	**11,318**	
Overhead-fixed	**36,794**	
Total costs		**$208,189**
Profit		**$12,000**

Using the total of direct cost:

$$\frac{\text{Total Direct + Overhead + Profit}}{\text{Total Direct}} = 1.3755$$

This required a factor of 1.3006 markup on direct costs to breakeven or 1.3755 to cover all costs and profit. Rather than pricing merchandising at retail as a function of direct cost, a more common policy is to mark it up as a function of merchandise (purchase) cost.

For example:

The 1.3755 is multiplied times the appropriate total direct cost in order to ascertain the selling price. However, if only the merchandise (purchase price—cost of goods) cost is used:

Total direct + overhead + profit ÷ merchandise (purchases) = 1.8951

Thus, the markup is 1.8951 times merchandise cost instead of total direct cost. However, usually at retail, the selling price is expressed in terms of markup from the selling price instead of the purchase price. The factor of 1.8951 to be multiplied by the purchase price may be converted to selling price basis (Table 11).

For example, an item which has a purchase price of $1, with the above targeted markup would be priced by $1.0000 × 1.8951 = $1.90 or $1.0000/.5277 = $1.90.

The asking price

Now that we have looked at alternative applications of arriving at the price, what price do we actually ask? Let's look at merchandise first because it is less complicated.

The targeted price is designed as the average realized by the department. Since some merchandise will

Table 11

Selling price = purchase price + markup
Selling price - markup = puchase price
Markup may be expressed as selling price x markup as a percentage of the selling price
Selling price - markup % x selling price = purchase price
Selling price (1 - markup %) = purchase price
Selling price = purchase price/(1 - markup percent)

In our example:

Markup percent = (Selling price - purchase price) /Selling price
= (1.8951 - 1.0000)/1.8951
= .4723

Then, = purchase price /(1 - .4723)
Selling price = purchase price /.5277

be lost, damaged and marked down, the initial asking price should be adjusted upward. Also, competition may make it difficult to get a full markup on some items so that other items must compensate. In some cases the exact calculated price may not fit conventional pricing strategy.

For example, almost no one would price a product at $10.51. So the calculated target price should merely be a starting place for arriving at the price finally used.

Adjusting the bid

How badly you want the job and the degree of competition influence the adjustment process. But how low and how high can you go?

Typically, we would say that on the low side, the bid should not be below variable or out-of-pocket cost. In the language we have been using, this would be all direct costs plus most of variable overhead costs. After all, in the short run, we are going to incur fixed overhead regardless of business volume.

At least two exceptions should be mentioned about the low price. In the case of contracting, for short periods of time it may pay to subsidize the labor cost in order to keep a valuable crew member. In merchandising we take whatever we can get for perishable merchandise such as Christmas trees at Christmas.

The higher bid

Consider at least two factors when bidding on the higher end of the spectrum: competition and the price/volume of business sales relationship.

For some products and services, a relatively high price sells fewer units but total sales are higher than if a lower price were charged.

On the other hand, when price is increased, the percentage decrease in quantity sold exceeds the percentage increase in price. In this case the price increase results in a decrease in total sales.

If you have considerable competition and the services you offer are not particularly exclusive, the higher price may lead to lower total sales. In this case lower prices result in greater total sales. In this case knowing the price which meets your goal becomes especially important because you must, on average, meet your goal.

Weaknesses of price systems

All pricing systems have weaknesses, starting with the information put into the system. Even though you may not have started with the information from your income statement for the previous year, expenses and cost allocations are relatively arbitrary. Depriciation may be used for the expected life of the item or may be based on the fast write-off system allowed in recent years.

The targeted ROI approach has much appeal because it provides a method of allocating overhead costs.

At least three warnings should be sounded:

1) Allocation of many costs among categories is somewhat arbitrary. Many cost items have some elements of more than one category.

2) The method works only if realized sales are in the vicinity of that amount projected. If you come up short, overhead costs not covered comes from profits.

3) The method tends to place equal weight of overhead on each dollar of direct costs. Obviously, there are different demands on overhead for each job. Calculated bid priced may have to be adjusted in order to be competitive, but if downward adjustments are made on some, upward adjustments must be made on others to be offsetting.

A time of competition

There is no magic formula for pricing landscape services. However, some methods which recognize that general overhead must be recoverd do not necessarily tell you how to price a product or service to cover it. The targeted ROI has the appeal of making the allocation, but caution is needed in applying the technique.

Competition in providing landscape services is increasing as more firms enter the business. Those firms which price their services in accordance with their costs are likely to be those which survive. **LM**

(ED. NOTE: We hope this examination of pricing theories for landscape contracting has been helpful. Let us know what you think. If you have a pricing system that works for you, drop us a line. We'll publish your ideas in a future issue.)

For some products and services, a relatively high price sells fewer units, but total sales are higher than if a lower price were charged for the service.

Dr. Phillips is a professor/economist in the Department of Agricultural Economics at Mississippi State University. He has written numerous articles on the economics of crop and horticulture production, and has developed and presented marketing programs for Mississippi landscape management firms.

SURVIVING IN A TROUBLED ECONOMY III

Maintaining company strength during lean times requires attention to all labor, material and equipment costs.

by Ed Wandtke, AGMA, Inc.

During any time of economic stress, most green industry companies are apprehensive. To be prepared to handle any volume of service increase or decline in 1991, a company owner needs to examine how the company can vary its operation in either direction.

Likewise, a company must examine various financial issues which may effect it in 1991. Some financial planning will be necessary in anticipation of changing economic conditions.

Operations check

The three major costs a green industry company incurs are labor, materials and equipment.

Labor and materials are variable, and dependent on volume; equipment costs are fixed.

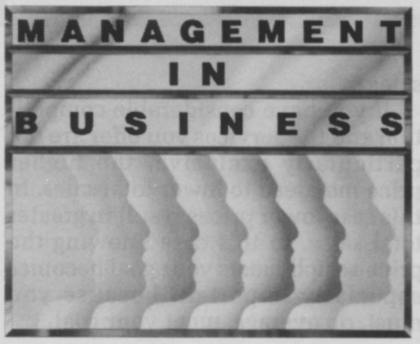
With increased fringe benefits and expected higher wages for older employees, a company owner must pay careful attenion to the cost of adding, keeping or replacing employees.

Payroll options

This year offers many companies the opportunity to maintain last year's pay level since there will be more unemployment in the marketplace. The problem with this approach is that most people who can be hired at last year's level will be no better than current employees.

A better option: increase wages to attract a higher level of employee than you have had in the past. This will allow you to hire people who can handle more decision-making challenges on the spot in the field. This will give you time to improve customer retention or work on prospecting.

If you do not have a system in your company to measure and track employee productivity, now is the time. Knowing production levels of each crew helps you determine which employees or crews are most effective. It may be surprising for you to learn that individuals or crews who always come back to the office late may not turn out to be the most efficient production personnel. Knowing this data, you can determine what needs to be done to increase productivity or you may identify employees who have become complacent or inefficient in their work performance efforts.



Posting production data daily or weekly often puts indirect pressure on individuals performing under the company average to increase their efforts. It is amazing what peer pressure can do to help underachievers reach higher levels of performance, with minimal pressure from management.

Quality service performance

Tracking customer service calls, the reason for the call, and the technician or crew who serviced the property is another area which you need to be monitoring for 1991. This information will provide you with insight into service effectiveness and quality.

Quality control information needs to be tracked to increase customer satisfaction and evaluate individual employee's effectiveness in delivering a quality service. Monitoring also identifies patterns of product or equipment failure, when and if those patterns start to appear.

Inventory control

Materials are generally the second-highest expense category for companies operating in the lawn/landscaping or the design/build segments of the green industry.

This means that paying close attention to and monitoring these costs may improve profitability.

Unless you've already done so, 1991 is the year to pay close attention to materials usage. An inventory control system will increase profitability.

Comparing the actual product used to treat an area against label specifications is important. In 1990, many companies complained of ineffective products. Upon investigation, it was determined that a lower rate was used than that recommended by the manufacturer.

Dump stale equipment

Companies accumulate equipment. Look around your facility and identify what equipment has not been used in the past two years. If you don't use it, sell it now. Turn that dusty equipment into cash.

Standardize on only one or two types of equipment to reduce parts needed to maintain equipment. This will also make training new employees easier since there is less equipment to learn.

Evaluate your equipment to determine the type of properties you are now servicing. Your customer mix may have changed over the past three or four years. Look for trade-in deals and change your equipment to better match the current property needs.

Look at the books

If you are unable to determine the profitability of any service, you risk losing money on an increase in volume. Perhaps you have missed business in your pursuit of what turned out to be unprofitable services.

Offering fewer services will prove more profitable if your total lawn service volume comes under pressure.

Don't let the competitive pricing and your quest for higher volume cause you to sacrifice profit margins.

Advisory groups work

If you have not operated a business during tight economic conditions, now is the time to call on the experience of others.

Most owners have a group of people who advise them on the direction

continued on page 80

THE PRODUCTION MACHINE

"HIGH CAPACITY, EXCEPTIONAL TRIMMING CAPABILITY"

TURF BLAZER 1260

That's how this machine has been designed! The mammoth 126" appetite affords you 75% higher capacity than a standard 72" unit. With a combination of a 60" mower out front and two 38" hydraulically operated wings, you are assured of picture perfect floatation over berms and undulations. With wings strategically located in line with drive wheel pivot point, you can achieve maximum trimming capabilities far superior to a 72" even under trees and bushes.

Add to this a field tested, 4-cylinder water-cooled, 40 HP diesel engine in conjunction with hydro-static transmission and you have a machine which will maximize your return on cost of acre cut.

Contact your local HOWARD PRICE distributor for a demonstration on your turf.

Manufactured by HOWARD PRICE TURF EQUIPMENT

18155 Edison Avenue
Chesterfield, Mo. 63005

Circle No. 280 on Reader Inquiry Card

QUICKIE-QUIZ

Post-emergence weed control

ED. NOTE: Answers to all questions can be found in this month's Post-emergence Weed Control Guides for Warm and Cool Season Grasses.

1. Unlike pre-emergence herbicides, post-emergence control products can be applied as "spot treatments" or on an "as needed" basis, directly to a weed infestation.
a. true
b. false

2. Even low rates of most post-emergence herbicides are harmful to newly-sprigged or sodded warm-season turfgrasses.
a. true
b. false

3. Which of the following have a good tolerance to MSMA and DSMA:
a. carpetgrass
b. centipedegrass
c. bermudagrass
d. St. Augustinegrass

4. Mowing schedules need to be coordinated with post-emergence herbicide applications. A general recommendation is to delay mowing:
a. one day before or after application
b. three to four days before or after application
c. 48 hours before application

5. Two applications of MSMA + Sencor are necessary to control goosegrass. The best interval is:
a. three to four days
b. five to seven days
c. two to three weeks
d. seven to 10 days

6. The tolerance of warm-season turfgrasses to post-emergence herbicides decreases at air temperatures greater than:
a. 75 degrees
b. 85 degrees
c. 90 degrees

7. Single applications at high rates generally cause more turfgrass injury than repeat applications at low rates.
a. true
b. false

8. The effectiveness of most post-emergence herbicides is better when rainfall or irrigation does not occur for _____ hours after application.
a. eight to 10
b. 10 to 12
c. six to 24
d. 48

9. Established dallisgrass can be controlled in bermudagrass or zoysiagrass with repeat applications of:
a. 2,4-D
b. Sencor
c. MSMA or DSMA
d. Image

10. _____ can be used in warm-season turfgrasses for yellow and purple nutsedge control.
a. DSMA
b. Sencor
c. 2,4-D + diclorprop
d. Image

11. Roundup is classified as a:
a. amine
b. ester
c. non-selective
d. surfactant

12. Why are amines most effective when used in the spring?
a. the price is low during spring
b. the product is less volatile
c. the weed is most susceptible to control

13. According to research, Dimension's ability to control crabgrass declines:
a. when the temperature rises
b. when tillers number four or more
c. under high humidity
d. when spray volume is low

14. Nyctinasty refers to:
a. A leaf's reaction to light
b. The ability of a plant to absorb chemicals
c. The chemical similarity between esters and amines

15. The LD_{50} of Roundup is:
a. 5600 mg/kg
b. 7200 mg/kg
c. 1500 mg/kg
d. 4700 mg/kg

16. The more lipophilic the leaf surface:
a. The prettier it looks
b. the easier it is to apply chemicals
c. the more difficult it is to retain water droplets
d. the more resistant it is to disease

ANSWERS: 1.a; 2.b; 3.c; 4.b; 5.d; 6.c; 7.a; 8.c; 9.c; 10.d; 11.c; 12.c; 13.b; 14.a; 15. b; 16. c

LANDSCAPE MANAGEMENT
SERVING GOLF AND LANDSCAPE PROFESSIONALS

Subscription Fax

free

Complete this form today and fax it to: 218-723-9433

I wish to receive (continue receiving) LANDSCAPE MANAGEMENT free of charge:
YES ☐ no ☐

Signature _____ **Date** _____
Name (please print) _____
Title _____ **Phone No. (_____)** _____

Your Firm's Name _____
Business Address _____
City _____ **State** _____ **Zip** _____
Do you wish to receive promotional materials? YES ☐ NO ☐

1. BUSINESS & INDUSTRY

My primary business at this location is: (Check only one in either A, B, or C)

A. LANDSCAPE/GROUND CARE AT ONE OF THE FOLLOWING TYPES OF FACILITIES:

0005 ☐ Golf courses
0010 ☐ Sports complexes
0015 ☐ Parks
0020 ☐ Rights-of-way maintenance for highways, railroads & utilities
0025 ☐ Schools, colleges & universities
0030 ☐ Industrial & office parks/plants
0045 ☐ Condominiums/apartments/housing developments/hotels/resorts
0050 ☐ Cemeteries/memorial gardens
0060 ☐ Military installations & prisons
0065 ☐ Airports
0070 ☐ Multiple government municipal facilities
☐ Other type of facility (specify)
_____
_____

B. CONTRACTORS/SERVICE COMPANIES/CONSULTANTS:

0105 ☐ Landscape contractors (Installation & maintenance)
0110 ☐ Lawn care service companies
0112 ☐ Custom chemical applicators
0125 ☐ Landscape architects
0135 ☐ Extension agents/consultants for horticulture
☐ Other contractor or service (specify) _____

C. SUPPLIERS

0205 ☐ Sod growers
0210 ☐ Dealers, distributors
☐ Other supplier (specify) _____
_____
_____

2. WHICH OF THE FOLLOWING BEST DESCRIBES YOUR TITLE? (Check only one)

10 ☐ EXECUTIVE/ADMINISTRATOR—President, owner, partner, director, general manager, chairman of the board, purchasing agent, director of physical plant
20 ☐ MANAGER/SUPERINTENDENT—Landscape/ground manager, superintendent, foreman, supervisor
30 ☐ GOVERNMENT OFFICIAL—Government commissioner, agent, other government official
40 ☐ SPECIALIST—Arborist, forester, architect, consultant, agronomist, pilot, instructor, researcher, horticulturalist, certified specialist
50 ☐ OTHER TITLED AND NON–TITLED PERSONNEL (specify) _____

Best-made tees: well-drained and roomy

There are two ways to "tee off" golfers: provide them with lush, spacious well-drained tees, or subject them to matchbook-sized tee surfaces with compacted soil.

Jim Latham sorta' thinks the former is the better way to go.

An agronomist with the USGA Green Section, Latham has seen the best and the worst the industry has to offer, and says the worst tees are brought about by a combination of poor cultural practices.

Start with drainage

Latham says that the best tees are well-drained, with a sand subsurface across the entire tee. "This way," he explains, "as the tee is watered, moisture goes into the sand and off in all directions. The shoulders, made of heavier soil, direct water toward the drain tile.

Broken ball tees are a sure sign of rock-hard, compacted soil. Add water, ASAP.

"The better the drainage off the slopes," continues Latham, "the easier the slopes are to maintain" with heavy mowers or aerators.

Be on the lookout for more broken ball tees than usual; they're a sure sign of thirsty, rock hard soil.

Shift the wear around

When building tees, remember: the wider the tee, the easier it is to shift wear and tear from side to side as well as from front to back. This might be harder to do on No. 1, since that's usually the smallest tee on the course.

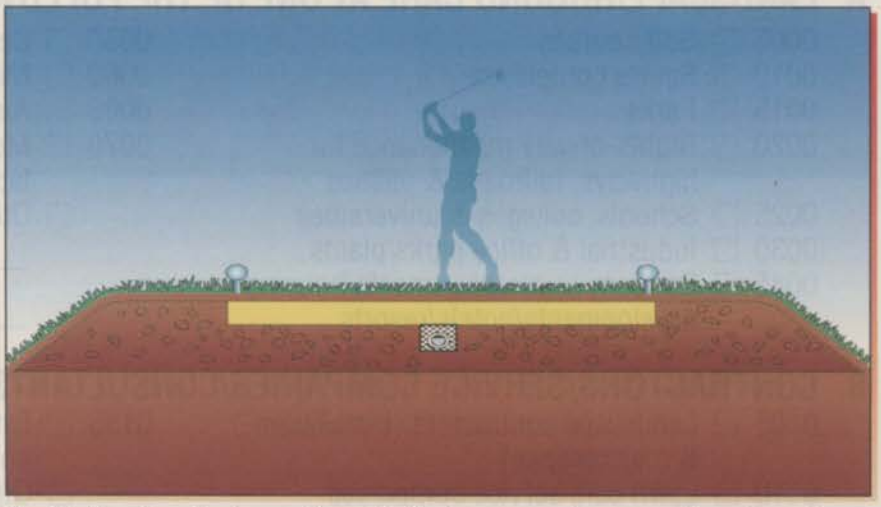
Latham quotes the USGA specs for tees: "for par 4 or 5 holes, we like to see about 100 square feet for every 1000 rounds played; with par threes, about 200 square feet per 1000 rounds. It takes that much space to keep up with the traffic over the long haul."

No trees on tees

Tees are for people. Large trees, when too close to tees, might just as well be weeds.

Especially, says Latham, with the cool-season grasses. They can't handle shade, traffic and competition for nutrients simultaneously.

Tees with lots of elbow room make it easier to control wear and tear from side to side and front to back.



Sand below the playing surface eliminates compaction, provides adequate tee drainage. Thicker soil on the slopes directs moisture towards the drain tile. Better drainage means easier mowing.

If you suspect a root is robbing the turf of nutrients, but do not want to remove it, Latham recommends root pruning.

Let the poa alone

Latham takes a positive outlook when it comes to *Poa annua* on tees. If a tee has some poa established, says Latham, "why not capitalize on it, and give it hell. Over-water it, over-fertilize it, aerify it, do something with it."

Shrubbery surrounding a tee might look good, but it's not considered a wise practice as it impedes air flow. "And without that air movement," says Latham, "we don't get evaporation. It's not giving the tee the necessary cooling effect," so important during warm weather.

Rye is recommended

Latham believes perennial ryegrass is "terrific" for cool-season tees.

"It comes up fast, produces well, can be cut at any height and looks pretty good if you seed them heavily enough."

When seeding new tees, Latham also recommends rolling the seed after it's put down to guarantee soil contact.

"It's such a simple thing," says Latham, "but so many times, a superintendent forgets to do it."

And *don't* forget to aerify. **LM**

NATURAL ORGANIC

Milorganite®

FERTILIZER

America's Number One Natural Organic Fertilizer

- *Many of the finest parks and grounds in America are fertilized with Milorganite.*
- *Non-burning, cost-effective, turf fertilizer.*
- *Rich in organic iron — 4% minimum guaranteed.*
- *90% Water Insoluble Nitrogen (W.I.N.), slow release nitrogen promotes vigorous growth.*
- *Supplies humus and improves water holding capacity of soils.*
- *The golf course choice.*

Circle No. 117 on Reader Inquiry Card

FREE LITERATURE

Mail in the coupon below for further information or call 414-225-2222.

Please send me further information LM-M

- ☐ *Milorganite's Specialty Fertilizer Program*
- ☐ *Milorganite's Iron — Technical Bulletin*

NAME

ADDRESS

CITY STATE ZIP

( )

PHONE #

Mail to: Milorganite • P.O. Box 3049 Milwaukee, WI 53201-3049

PRODUCTS

New mid-size rider full of finer features

From the Grasshopper Co. comes a new mid-size rider mower with 44- or 48-inch cutting decks and a variety of features.

Model 614 runs via a direct drive dual-hydrostatic system and dual levers for easy control. The model also boasts of zero-turning radius.

Among optional attachments are included an eight-cubic-foot grasscatching system, a 48-inch

multi-purpose dozer blade and a 48-inch snow thrower.

Circle No. 191 on Reader Inquiry Card

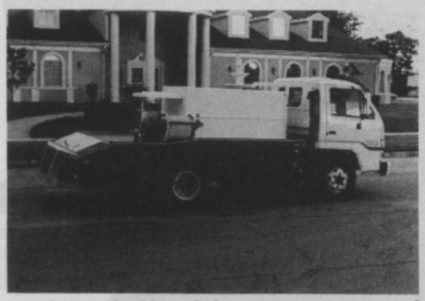
State-of-art spray truck now available

Neelco Industries, Inc. introduces its premier lawn spray truck line with its Premier model.

The truck, featured at the National Pest Control Convention in 1990, a 500- gallon baffled fiberglass holding tank and eight hp Wanna Hydra Cell pump.

The vehicle is designed for easy access to all valves including sight gauge for the drop tank, pressure gauge and the remote starter switch for the pump engine.

The vehicle comes equipped with



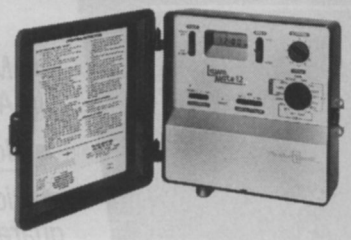
300 feet of half-inch hose spray mounted on the side and spooled on a Hannay electric reel. Neelco can custom build spray equipment to specifications.

Circle No. 192 on Reader Inquiry Card

Two irrigation system controllers proving popular

Weather-Matic Co. says its two new LawnMate Controllers are being well received by irrigation specialists. Don Thompson, director of Weather-Matic's marketing and sales department says operation ease is one reason for the good reception.

LawnMate Controllers feature a nine volt standard alkaline battery



which automatically turns on in the event of power failure. Programs and clock time are uninterrupted for a week with the back-up system.

Thompson says LawnMate installation time is lessened because a lower panel is removable allowing access to the field wiring terminal block. The unit is equipped with keyhole mounting.

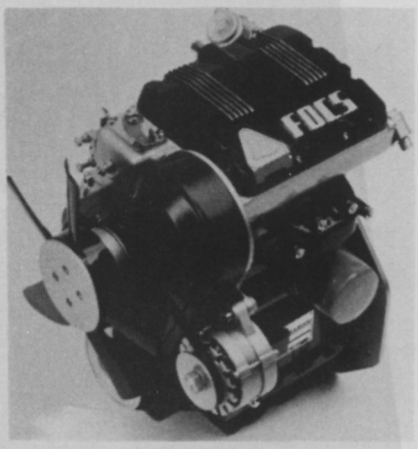
LCS information display includes time, date, watering days, program values and days of the week. Rocker switches are used for all programming.

Two models are designed for seven and 12 stations.

Circle No. 193 on Reader Inquiry Card

Complete diesel engine line available in U.S.

From Lombardini U.S.A., Inc. comes a complete line of diesel motors including both air-cooled



and liquid-cooled models.

Liquid-cooled engines range from 10 to 48 hp; air-cooled models from four to 110 hp.

Lombardini says the engines, engineers for the construction industry, are backed by a nationwide distributor, dealer and service system.

Circle No. 194 on Reader Inquiry Card

continued on page 70

Tree Pro•tector™

DEVELOPED AND USED BY PROFESSIONALS.

Protect trees from permanent damage and possible death caused by string trimmers and lawn mowers. • One-of-a-kind cushioning shape. • Available in two colors to blend with nearly any landscaping. • Ultraviolet protected to prolong product life. • Expandable by linking two or more together for larger trees. Seconds to install. Reusable.

Call now for the name of your local representative or retailer.

1-800-628-7689

SEABERRY*LANDSCAPING INC.* • 3259 Terminal Drive • Eagan, MN 55121 • 612-454-9511

Circle No. 139 on Reader Inquiry Card

Now, after years of exacting test reports, pre-commercial "225" comes to you as

Classic

P.V.P. No. 8500016

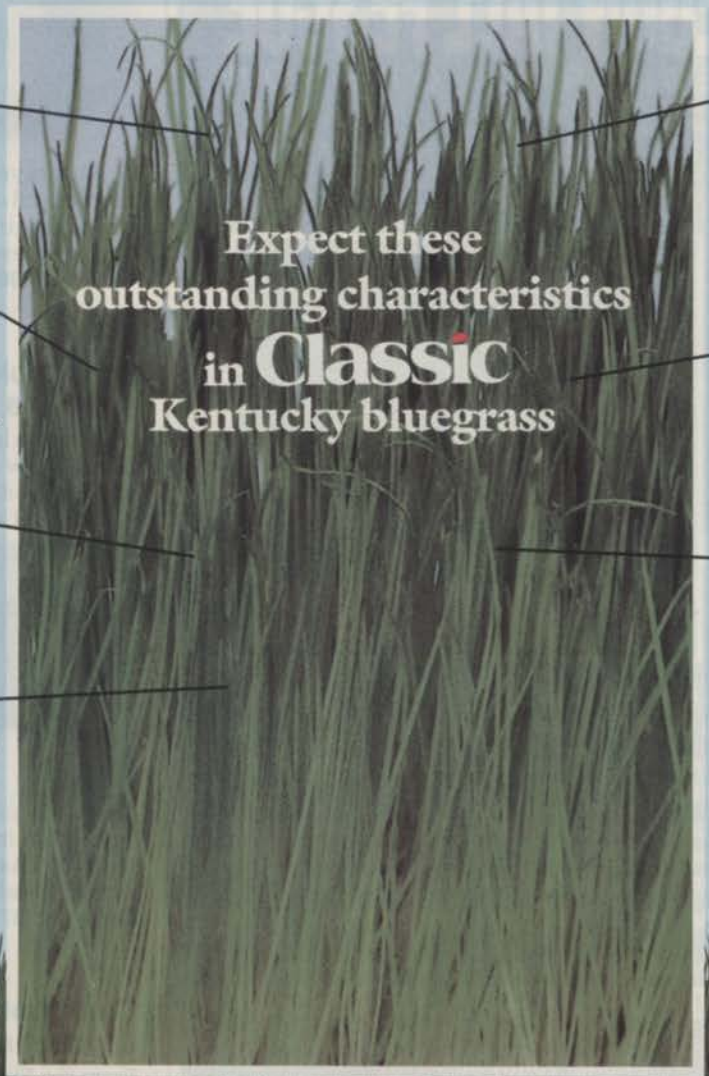
the elite, Category 1 Kentucky bluegrass

YEAR 'ROUND QUALITY
Classic demonstrates high quality texture from early spring to winter throughout the traditional bluegrass belt.

EARLY STAND STRENGTH
Classic produces strong plants that withstand early growth abuse, demonstrates developmental strength in both irrigated and dryland conditions.

HIGH DENSITY
Test reports indicate Classic's ability to produce a highly dense stand and excellent percent of living ground cover all year long.

PEST RESISTANT
Classic demonstrates good resistance to leaf spot, crown rot and rust. Classic demonstrates resistance to stripe smut, snow mold, stem rust and Fusarium blight. Classic is tough.



BRIGHT, DEEP GREEN COLOR
Texture and color of Classic provide a handsome pleasing growth. Color is bright, deep green. Classic proves highly compatible in turf-seed blends. Classic is a sward of beauty.

UNIFORM & STABLE
Classic offers the genetic capability to remain true to the variety. Aberrant growth is extremely low. When you plant Classic, you get Classic.

EARLY GREEN-UP
Classic comes on strong in the spring with early green-up, retains its color well into the winter season.

Call or write your seed supplier. Ask for Classic facts.

PETERSON SEED COMPANY, INC.
P.O. BOX 346 SAVAGE, MN 55378
Circle No. 127 on Reader Inquiry Card

Turf colorant now comes in tablet form

Becker-Underwood, Inc. now manufactures its popular Turf Mark colorant in tablet form.

The tablet is designed for use with most common backpack sprayers. Each tablet treats one to two gallons of spray solution. The tablets dissolve without agitation. Pond and fountain water may also be colored with the product.

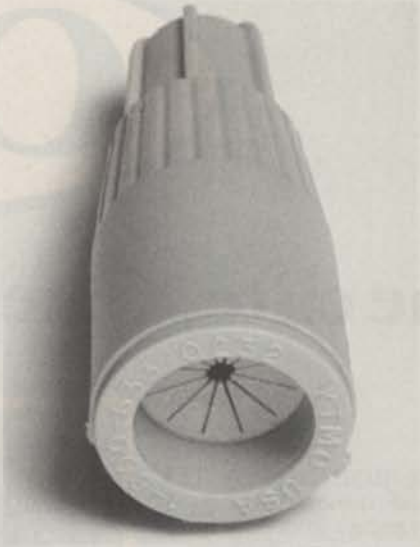
The Turf Mark colorant mixes well with all water soluble pesticides and fertilizers.

Circle No. 195 on Reader Inquiry Card

New waterproof splicer simplifies electric joints

King Irrigation Products now offers a "one step" waterproof splicer which may be used on all low voltage systems where such a joint is desired.

Filled with a waterproof gel, the one-step wire connector can accommodate most common wire sizes from three No. 22s to 4 No. 12s. King says use of the wire connector eliminates need for red, yellow, orange and blue or gray connectors. Once wires are passed through the cap, they are coated with a sealant. The connector is twisted for final sealing.



King says typical uses include residential and commercial outdoor lighting, fountains, waterfalls and marine and dock uses.

Circle No. 196 on Reader Inquiry Card.

Adustable nozzle provides flexibility

The popular Toro Stream Rotor nozzle now comes in a more adjustable version, the company says.

The first adjustable Stream Rotor is

adjustable in the 16- to 30- foot range without changing nozzles. The new nozzle fits all bodies.

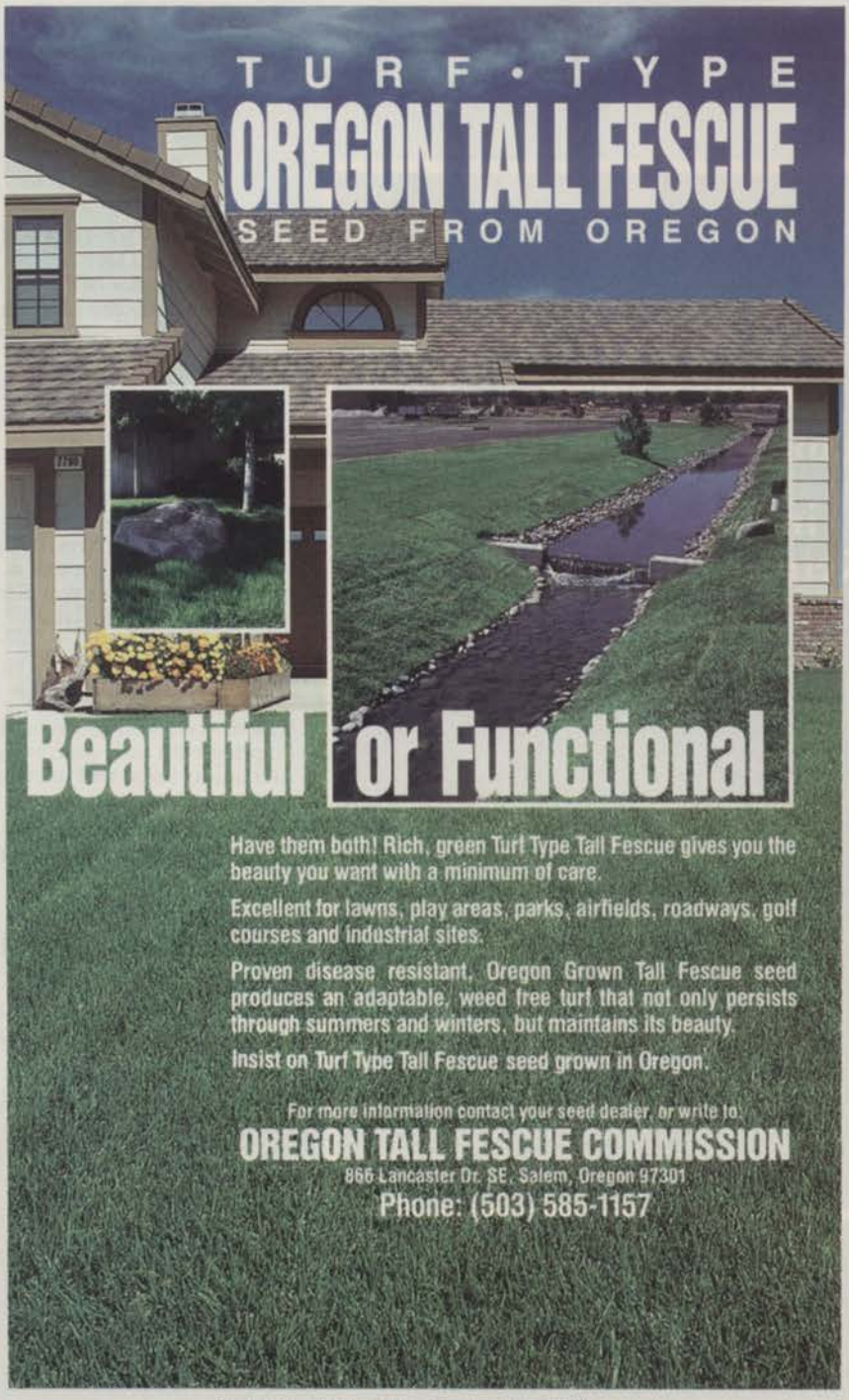
Circle No. 197 on Reader Inquiry Card

Clear bottle eases absorbent product use

From the Finn Corporation comes clear plastic bottle packaging of Hydro-Gel A 1000C; granules which soak up to 400 times their weight in water.

Finn says the plastic bottle also is equipped with a special shaker and pouring onto an affected area is an easy task.

continued on page 72


TURF • TYPE
OREGON TALL FESCUE
SEED FROM OREGON
Beautiful or Functional
Have them both! Rich, green Turf Type Tall Fescue gives you the beauty you want with a minimum of care.
Excellent for lawns, play areas, parks, airfields, roadways, golf courses and industrial sites.
Proven disease resistant, Oregon Grown Tall Fescue seed produces an adaptable, weed free turf that not only persists through summers and winters, but maintains its beauty.
Insist on Turf Type Tall Fescue seed grown in Oregon.
For more information contact your seed dealer, or write to:
OREGON TALL FESCUE COMMISSION
866 Lancaster Dr. SE, Salem, Oregon 97301
Phone: (503) 585-1157

Circle No. 124 on Reader Inquiry Card

News from Monsanto...

ROUNDUP®
HERBICIDE

PRICE CUT

$22 ON 2½'S!

Monsanto has lowered the price of Roundup® herbicide by $22 on the 2½ gallon container size!

The price is even lower in 30's. Now you'll find even *more* value in Roundup and *more* places to use it *more* often.

Think of the budget-stretching savings Roundup can bring you compared to time-intensive string trimming. Or the labor-savings in using lower-priced Roundup to maintain weed-free beds and pine islands. Use it to eliminate brush, poison oak, poison ivy... in landscape site preparation and turf renovation.

Figure your savings at the new lower price. Then see your dealer or retailer to save on Roundup.

Always read and follow the label for Roundup herbicide. Roundup® is a registered trademark of Monsanto Company. © Monsanto Company 1991 RGP-1-170BR

Circle No. 115 on Reader Inquiry Card

LOWER YOUR LANDSCAPE MAINTENANCE COST
Lombardini engine reliability helps reduce your equipment maintenance costs. Call today to learn what advanced technology engine design can do for your bottom line.
(404)623-3554
Atlanta, Georgia 30136
LOMBARDINI USA, INC.

Circle No. 114 on Reader Inquiry Card

Hydro-Gel A 10000C can assist in absorbing excess water from damp or saturated soil.

Circle No. 198 on Reader Inquiry Card

Small area fixed sprinklers on market

Toro Co. now sells a new 570C series of fixed pop-up sprinklers in three-, four-, six- and 12-inch sizes. The series comes equipped with racheting

continued on page 78

THE DIFFERENCE IS DESIGN THE DIFFERENCE IS DESIGN THE DIFFERENCE IS DESIGN

MAKE A CLEAN SWEEP

PRICE REDUCTION

AVAILABLE WITH 18 HP KOHLER OR PTO DRIVE

PICKS UP GRASS, LEAVES AND TRASH

3.1 CUBIC YARD HOPPER CAPACITY

SUITABLE FOR TURF & HARD SURFACE

HAND-HELD INTAKE HOSE FOR CLEANING UP FENCE ROWS, ETC.

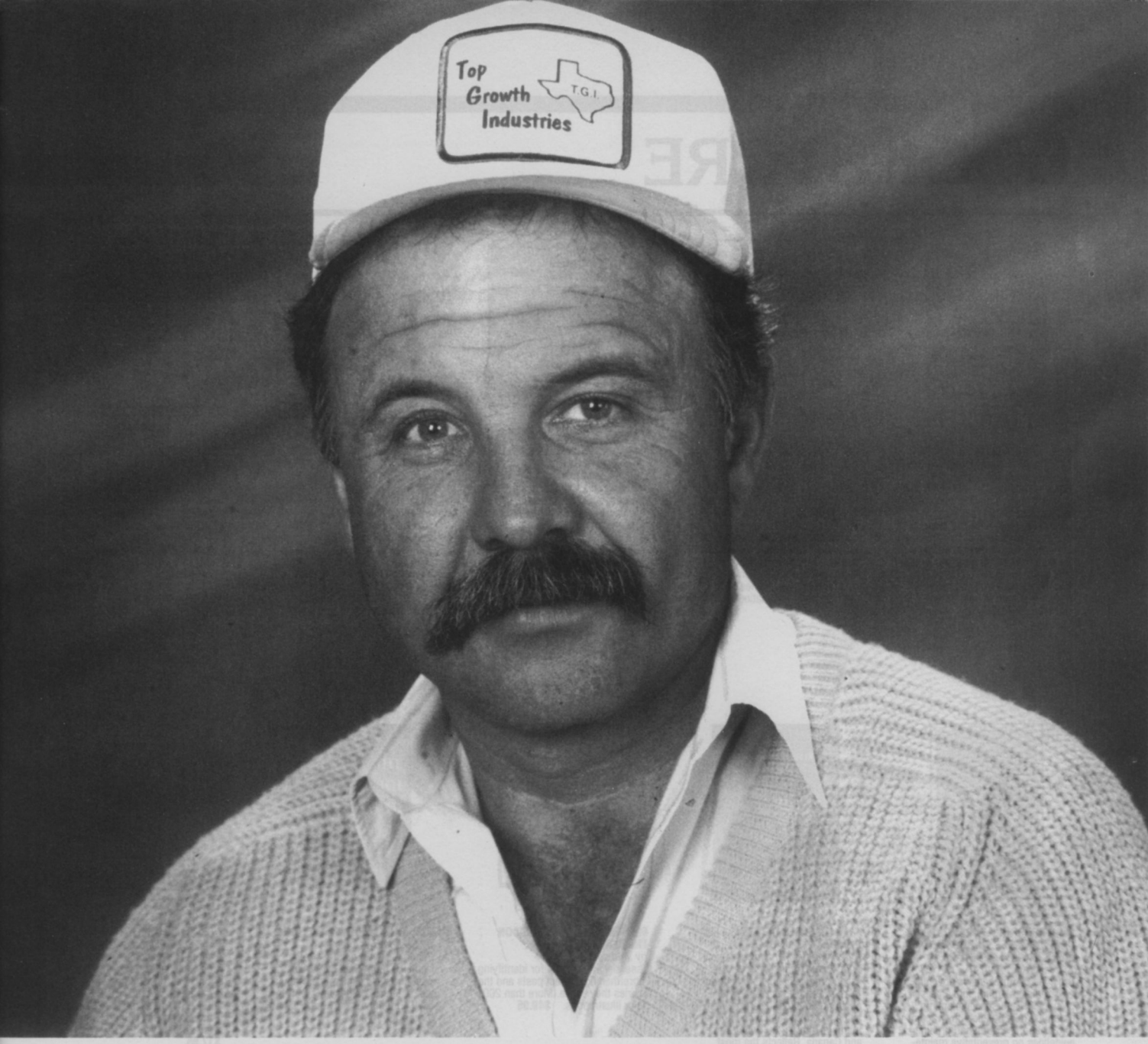
CALL PROMARK FOR MORE INFORMATION ON THE *"NO PAYMENTS UNTIL MARCH 1, 1991 LIMITED OFFER"*

PROMARK PRODUCTS INC.

330 9TH AVENUE, CITY OF INDUSTRY, CA 91746 USA
(818) 961-9783 FAX (818) 961-2307

THE DIFFERENCE IS DESIGN THE DIFFERENCE IS DESIGN THE DIFFERENCE IS DESIGN

Circle No. 129 on Reader Inquiry Card



"During the 1990 season, we added ROOTS* Root Growth Enhancer to our installation program. We originally tested the product as a root enhancer on container-grown trees. We found that we not only increased our transplant quality overall, but the new trees adapted and established faster and healthier than with other root stimulators we had tried in the past.

The growth enhancer decreased the shock that newly planted ornamentals and trees normally go through. This year we very successfully applied this same material to newly layed St. Augustine turf areas — only to discover the same scenario. The new sod established roots almost immediately! We also found that the new turf does not discolor.

All in all, this means better-quality installation success for us, along with happier customers and pleasing, healthy-looking new plant material!"

Jay Cannon,
General Manager
Top Growth Industries
Houston, TX

roots inc.

A Division of LISA Products Corp.
25 Science Park, New Haven, CT 06511

*ROOTS is a trademark of LISA Products Corporation

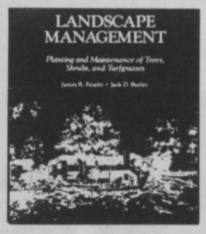
Circle No. 130 on Reader Inquiry Card

Please call us toll-free at 1-800-342-6173 for additional information.

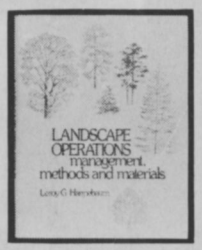
BOOKSTORE

345 - KERR'S COST DATA FOR LANDSCAPE CONSTRUCTION 1991
By Norman L. Dietrich
Eleventh edition. Provides all the pricing data you need in one convenient source. 28 major sections cover site, recreation and landscape development, 65 subsections provide specific data on materials, equipment and labor. Will save you hours on time-consuming research and calculations. Organized in easy-to-use CSI format. **$44.95**

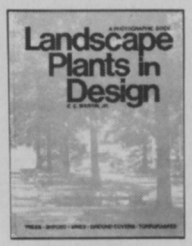
300 - LANDSCAPE DESIGN: A PRACTICAL APPROACH
by Leroy Hannebaum
Geared for the commercial designer/salesperson, this is a one-stop guide to the landscape design process. Covers the entire highly competitive field including design analysis techniques, pointers on land forms, specialized business landscaping methods, environmental design guidelines, specifications, estimations, bids. **$54.95**



305 - LANDSCAPE MANAGEMENT
by James R. Feucht and Jack D. Butler
Planting and Maintenance of Trees, Shrubs, and Turfgrasses. Describes the basic principles of cultural management of installed landscapes. The important factors of plant growth, soils and fertilizers, improved planting techniques and new pruning techniques, integrated pest and disease management, and spray-equipment calibration and care are all featured. **$35.95**

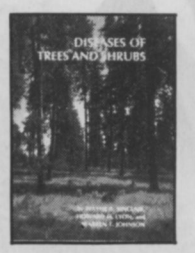


370 - LANDSCAPE OPERATIONS: MANAGEMENT, METHODS & MATERIALS
by Leroy Hannebaum
An in-depth examination that combines technical training in landscape science with methods of accounting, business management, marketing and sales. Discusses effective methods for performing lawn installations, landscape planting and maintenance. Step-by-step accounting calculations are explained in simple terms. **$54.95**



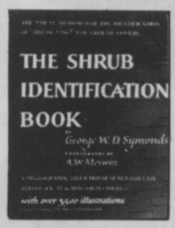
365 - LANDSCAPE PLANTS IN DESIGN
by Edward C. Martin
An annotated black & white photographic guide to the design qualities of ornamental plants and their aesthetic and functional use in landscape designing. Over 600 trees, shrubs, vines, ground covers and turfgrasses are described in non-technical language. Over 1900 photographs. Provides a basis for selecting the best plant materials for any particular use in landscape design. Contains detailed indexes that provide quick reference to particular design qualities and growing conditions. **$69.95**

665 - ARBORICULTURE: THE CARE OF TREES, SHRUBS AND VINES IN THE LANDSCAPE
by Richard W. Harris
Provides comprehensive coverage of complete planting, site analysis, preparation and special planting methods, fully detailed coverage of fertilization, irrigation and pruning guidelines on preventative maintenance, repair and chemical control, how-tos of diagnosing plant problems, practical data on non-infectious disorders, diseases, insects and related pests and pest management. **$63.00**

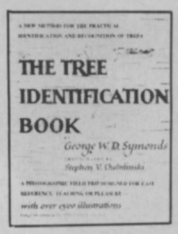


430 - DISEASES OF TREES AND SHRUBS
By Wayne Sinclair, Howard Lyon and Warren Johnson
A comprehensive pictorial survey of the diseases of, as well as the environmental damage to, forest and shade trees and woody ornamental plants in the United States and Canada. Reflects the most important developments in fungal biology and taxonomy, plant bacteriology, virology, and environmentally induced stress in plants. Summarizes information about newly discovered diseases and provides up-do-date accounts of old ones. **$52.50**

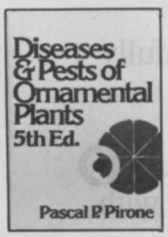
690 - INSECTS THAT FEED ON TREES AND SHRUBS
by Johnson and Lyon
Essential information for identifying more than 650 insect pests and the injuries they cause. More than 200 color illustrations. **$49.95**



720 - SHRUB IDENTIFICATION
by George Symonds
Pictorial key to identify shrubs. Contains more than 3,500 illustrations to check specimens. Popular and botanical names are given for each shrub and handy index tabs for quick reference.
$17.95

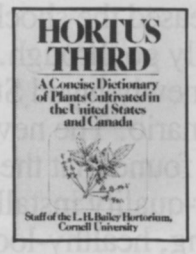


750 - TREE IDENTIFICATION
by George Symonds
Pictorial reference to identifying trees by checking leaves, buds, branches, fruit and bark. Like its sister publication, SHRUB IDENTIFICATION, popular and botanical names are listed with index tabs for easy reference.
$17.95

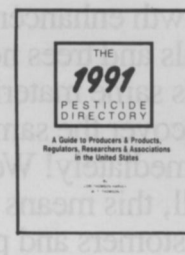


410 - DISEASES & PESTS OF ORNAMENTAL PLANTS
by Pascal Pirone
This standard reference discusses diagnosis and treatment of diseases and organisms affecting nearly 500 varieties of ornamental plants grown outdoors, under glass or in the home. Easy to understand explanations of when and how to use the most effective fungicides, insecticides and other control methods. **$49.95**

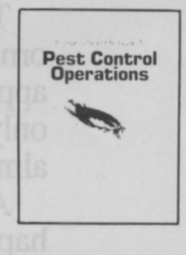
800 - THE GOLF COURSE
by Cornish and Whitten
The first book ever to give the art of golf course design its due, and golf course architects the credit and recognition they deserve. 320 pages and 150 color and black and white photographs. Traces the history and evolution of the golf course, analyzes the great courses, shows how they were designed and constructed. **$35.00**



510 - HORTUS THIRD
from Cornell University
A 1,300 page concise dictionary of plants cultivated in the United States and Canada. A reference which every horticulture professional should have. **$135.00**



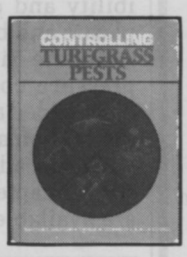
500 - THE 1991 PESTICIDE DIRECTORY
by Lori Thomson Harvey and W.T. Thomson
A Guide to Producers and Products, Regulators, Researchers and Associations in the United States. For the person who needs to know anything in the United States pesticide industry. **$75.00**



125 - SCIENTIFIC GUIDE TO PEST CONTROL OPERATIONS
by G.W. Bennett, J.M. Owens, R.M. Corrigan
Fourth Edition. New chapters on fumigation, urban wildlife, special facilities, plus updated, improved chapters on pesticides, cockroaches, birds, termites, equipment, sanitation, stored product pests and more. Don't be without this updated edition.
$49.95 Domestic All Others $60.00

BOOKSTORE

375 - RESIDENTIAL LANDSCAPES
by Gregory M. Pierceall
An excellent reference for individuals involved in the design and development of plantings and constructed features for residential sites. Illustrations and actual residential case study examples are used to communicate graphic, planning and design concepts which are the focus of this text. **$55.95**



220 - CONTROLLING TURFGRASS PESTS
by Shurtleff, Fermanian, Randell
New comprehensive guide provides the most up-to-date information available on the identification, biology, control and management of every type of turfgrass pest. **$48.95**

235 - LAWN CARE: A HANDBOOK FOR PROFESSIONALS
by H. Decker, J. Decker
Written by turfgrass professionals, this handy guide will be invaluable for playing field managers, golf course managers, or any lawn care practitioner. Covers all aspects of turfgrass management. **$48.95**

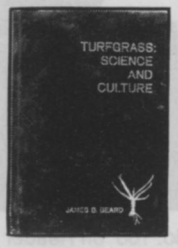
640 - TURF IRRIGATION MANUAL
by James Watkins
A guidebook for engineers, architects, designers and contractors. Keeps pace with the latest developments in turf and landscape irrigation. Specific chapters devoted to rotary sprinkler design systems. Golf course design systems and expanded engineering and reference material. **$29.90**

615 - TURF MANAGEMENT FOR GOLF COURSES
by James Beard
Written by an eminent turfgrass researcher, this USGA sponsored text is an ideal reference and "how to" guide. Details all phases of golf course design and construction, turf management, course administration, irrigation, equipment and disease and pest control. Fully illustrated. **$74.00**

760 - TREE MAINTENANCE
by Pascal Pirone
The sixth edition of this guide for anyone involved in the care and treatment of trees. Special sections on tree abnormalities, diagnosing tree troubles, non-parasitic injuries and assessing the suitability of different trees. **$49.95**

620 - TURF MANAGEMENT HANDBOOK
by Howard Sprague
Practical guide to turf care under both healthy and poor turf conditions. Chapters cover turf in cooler and warmer regions, fertilizer use, regular turf care, weed and disease control and special turf problems. Useful seasonal schedules for management of turf areas. **$26.60**

225 - TURFGRASS MANAGEMENT REVISED
by A.J. Turgeon
Covers the latest developments in turfgrass science and technology. Heavily illustrated with dozens of new drawings. Provides specific recommendations for applying the newest pesticides, fertilizers and other materials to combat turfgrass problems. **$54.95**



630 - TURFGRASS: SCIENCE AND CULTURE
by James Beard
Comprehensive basic text and reference source used in many leading university turf programs. Includes findings of current research compiled from more than 12,000 sources. **$54.95**

110 - TURF MANAGERS' HANDBOOK-Second Edition
by Daniel and Freeborg
ENTIRELY UPDATED. A practical guide for the turf practitioner. Chapters on grasses, growth regulators and diseases have had extensive modification. Innovations resulting from research and practice have been added to reflect the current techniques available for turf managers. **$32.95**

RETURN THIS COUPON TO: BOOK SALES, ONE EAST FIRST STREET, DULUTH, MN 55802

PLEASE SEND ME THE FOLLOWING BOOKS. MY PAYMENT* IS ENCLOSED.

Book Number and Title	Quantity	Price	Total Price

Domestic—*Please add $3.50 per order plus $1.00 per additional copy for postage and handling.

All others—*Please add $5.00 per order and if ordering multiple copies, also add $2.00 per additional copy to cover postage and handling.

Please allow 6-8 weeks for delivery.
Prices subject to change.
Quantity rates available on request.

Questions? Call 218-723-9471 or 9472

Total _____

Postage & Handling _____

Total Enclosed _____

PAYMENT MUST ACCOMPANY ORDER

Please charge to my Visa, MasterCard or American Express (circle one)

Account Number _____

Expiration Date _____

Name _____

Street Address _____

City _____

State _____

Zip _____

Phone Number ( )

Signature _____

Date _____

YOUR TREES DESERVE
THE BEST OF CARE
Trees are valuable assets.
Don't entrust their future to less
than caring professionals.
Bartlett leads the way in tree care with
trained arborists, research facilities, nation-
wide experience and specialized equipment.
For a professional evaluation of your tree
care needs or for our free brochure,
call today. There is no obligation.
1-800-THE EXPT
(1-800-843-3978)
Scientific tree care since 1907
BARTLETT
TREE EXPERTS
STAMFORD, CT
©1990 Bartlett Tree Experts

Circle No. 103 on Reader Inquiry Card

"With a Wells Cargo Behind... You Never Look Back"

14 ft. cargoWagon® EW142

ALL YOUR GEAR...
SECURE, ORGANIZED AND READY TO ROLL

We can say, "We build the best". Our specifications sheets will back that up. But why else should you consider Wells Cargo? How about:

- **Factory Service Facilities - GA, IN, TX, UT.**
- **US Wide Dealer & Service Network.**
- **A Product Designed & Built for 15 Yrs. Hard Service, and More.**
- **Second-to-None 3 Yr. Warranty Coverage.**
- **Full Line Ball-Hitch Units 6" — 32" and Up.**
- **Full Line Fifth Wheel Units 20' — 40' and Up.**

CATALOGS SPECIFICATIONS
CALL
1-800-348-7553
SAY YOU SAW IT IN LANDSCAPE MGT.

WELLS CARGO **SINCE 1954**

WELLS CARGO, INC. P.O. BOX 728-975 ELKHART, IN 46515

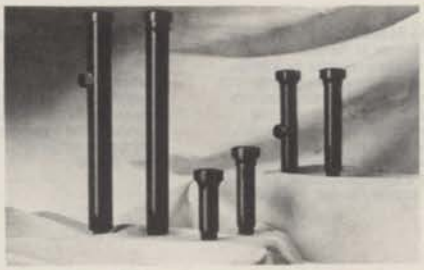
Circle No. 150 on Reader Inquiry Card

PRODUCTS *from page 72*

risers for after-installation arc adjustment. The line also has 45 pressure compensating nozzles for design flexibility and over 90 interchangeable plastic and brass nozzles.

In the six- and 12-inch models, pressure compensating nozzles are color coded and inlets are available on the bottom and side.

Shrub adapters, extenders, micro spray adapters and check valve units are available.



Circle No. 199 on Reader Inquiry Card

New chipper/shredder a more powerful line

A new 8 hp chipper and shredder from Tornado Products, Inc. boasts of greater shredding and grinding power than other models in its size.

The 8 hp Baker model features 12 patented free-swinging triangular hammer units to grab trimmings. The

company says the arrangement allows for more cutting space.

Other patented features include an idler clutch and bearing guard which prevent wear and tear on the V-belt and bearings.

Direct bagging from a side discharge system is standard.

Circle No. 200 on Reader Inquiry Card

Backpack blowers now equipped with autostart

Two backpack blowers from Red-Max feature autostart and recoil

system.

The blowers, which deliver airflows of 600 cubic feet per minute,

start with a push button which activates a self-charging, battery-type autostarter.

Other features on the RedMax line include a ventilated backpad, rubber mounts and a low-noise muffler.

Circle No. 201 on Reader Inquiry Card

Color added to field conditioner

Terra-Green now sells its field conditioner Terra-Green in a green color for use in sports turf repairs.

Terra-Green is also a drying agent and top-dressing which improves aeration and drainage and gives the turf a nutrient reservoir and moisture.

The company says Terra-Green

works well on football and soccer fields, giving a green color to torn areas.

Terra-Green is available nationally from Partac Peat Corp.

Circle No. 202 on Reader Inquiry Card

Brush chipper struts are strong, useful features

Equipped with a 3/4- inch flywhell and two full-length knives, Promark Products' 100 Series brush chipper will handle material up to three inches.

The chipper also features a folding feed apron and materials may be discharged into a pickup truck, trash can or the ground.

The towable unit can be equipped with eight or 12 hp engines. The company says it is ideal for rental, homeowners, landscapers and nurseries.

Circle No. 203 on Reader Inquiry Card

New chipper will handle biggest jobs

Bandit Industries' new Model 1400 Tree Bandit Whole Tree Chipper features a 14- inch diameter chipping capacity and is designed for nearly all land-clearing jobs, says the company. The chipper produces usable wood chips.

Optional equipment includes a winch which can skip and forward treees into chipper. A backhoe-style loaded, 200- hp Cummins diesel engine, dual-axle suspension and hydraulic lift are standard.

A conventional knife-clamping system is optional.

Circle No. 204 on Reader Inquiry Card

Mustang Today.
Just look at us now! You've known Mustang as a rugged line of skid steer loaders. But now we're also two-wheel and four-wheel drive site dumpers. We're single and double-drum vibratory rollers for surface compaction. And, we're self-propelled aerial work platforms.
Today, Mustang is the product line committed to delivering the performance you need on the job.
MUSTANG
940
MUSTANG®
Run with it
CALL 1-800-562-5870 FOR THE COMPLETE MUSTANG PRODUCT STORY.
MUSTANG MANUFACTURING COMPANY, INC. • P.O. Box 547 • Owatonna, MN U.S.A. 55060
(507) 451-7112 • Telex: 933001 • FAX: 5074518209

Circle No. 120 on Reader Inquiry Card

SURVIVING *from page 62*
and operation of their company.

These advisors should possess a business savvy. Combine their expertise with others who are experienced in the green industry. Rather than advice from your attorney or accountant, you need to hear from individuals who are not specifically familiar with your company.

Tracking cash flow

If you have not developed a cash flow budget, have your accountant devise one for you.

Such a plan identifies the amount of working capital your company will need and when it will be required in 1991. This reduces anxiety about cash flow because you will have cash reserves available when monetary pressure is highest. This often coincides with the early spring peaks for leads and service.

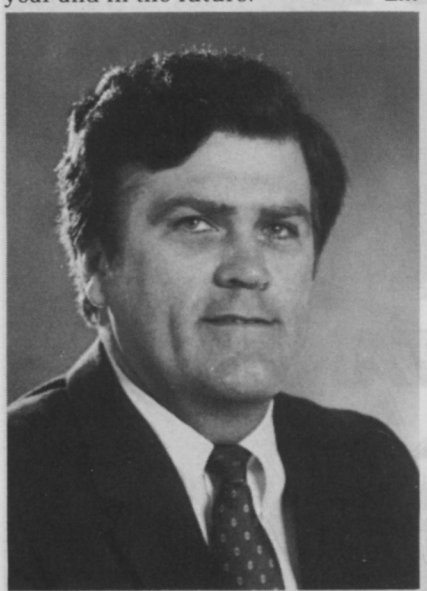
You're not alone

Most green industry companies will feel severe economic pressure in 1991. Developing a plan to operate during tight fiscal times will assist you in achieving your goals.

Make "financial management" your watchwords for 1991.

Know what you must do in anticipation of lower volume; prepare an alternative operating plan that takes into consideration a volume level of five to 10 percent below your anticipated budget plan.

Keep an eye on operations and tight fiscal management. Keeping yourself and your employees focused on the financial impact of everything done in the company will increase the fiscal success of your company both this year and in the future. **LM**



Ed Wandtke is a senior consultant with All-Green Management Associates in Columbus, Ohio.

RESEARCH UPDATE

Iron fertilizers have mixing, pH guidelines

by Kurt Winkler, RGB Laboratories Inc.

TANK MIX pH in pH 9.75 WATER

Rate in 3 Gal. Water	Agri - Plex®	Ferrous Sulfate	Liquid urea/ Ferrous Sulfate
1 oz.	6.86	5.10	3.44
3 oz.	6.40	3.50	2.86
5 oz.	6.20	3.33	2.66
8 oz.	6.10	3.22	2.52

Iron fertilizer applications are gaining attention as a way to provide green color to turfgrass without causing excessive leaf tissue growth.

Iron fertilization is a common practice on golf courses; now, lawn care companies are considering iron applications combined with lower rates of soluble nitrogen or in combination with more slow-release nitrogen products. This is especially important during spring and summer on cool-season grasses, since we do not want to stimulate leaf growth at the expense of root growth. Also, as the environmentally sound concept of "grasscycling" (returning clippings to the soil) gains favor, the controlled growth is even more important since we do not want to "make hay" on a home lawn or commercial property.

While the green industry accepts iron as a valuable nutrient, certain rules should be followed to get the most out of your iron application.

Tank mix guidelines

When iron is tank mixed with fertilizers, especially fertilizers containing phosphorous, the resulting tank mix should be clean and clear, without settling or clouding. When a white, cloudy appearance is observed, the iron is precipitating, or tying up with phosporus, and this iron-phosphate precipitate is unavailable for plant uptake. Dry soluble N-P-K fertilizers usually contain a blue or green dye which masks this reaction, so this tank mix must be carefully observed.

Iron products mixed with controlled release nitrogen should again be clean and without sediment. If there is a purple sedimentation, then iron availability is reduced due to precipitation.

Amine herbicide and iron tank mixes should also be carefully observed: the mix should be a clear, slightly brown color. Iron that is not compatibile with amine herbicides will have a murky brown color with slight settling. This is an interesting reaction because very little available iron is lost, but broadleaf weed control may be reduced, particularly on deep-rooted perennial weeds. A compatibility check is advised, especially when using low-volume spray applications of 2 gal./1000 sq. ft. or less.

Rapid pH changes

While it's commonly known that most iron products acidify the tank mix, it is surprising how quickly and dramatically the pH can change, as shown in the chart above:

Liquid iron products containing nitrogen may have slight pH differences, but they are usually formulated at pH 2.0 to 3.0. Furthermore, it's important to remember that, practically speaking, water does not have the ability to resist change in pH. So regardless of your water source and its pH, the ending values are still about the same as shown on the chart.

As a general rule, universities and manufacturers suggest a tank mix pH of 6.0 to 7.0 when spraying fungicides or insecticides. Obviously, not all pesticides are affected by pH, but since it's difficult to keep track of all products that are affected, this is still a good rule.

Since iron is readily absorbed by grass leaf tissue, sprayers should be adjusted to achieve maximum leaf coverage. Low-volume applications will work with a fine spray droplet, but a large droplet should be avoided in this situation.

Chelates protect solubility

Any plant nutrient must be relatively soluble for plant uptake. But since iron is inherently insoluble, manufacturers combine iron with organic molecules called chelates. Chelates protect the iron solubility over a wide range of conditions. Chelation is a complex subject, but for practical purposes, fully chelated iron will avoid the tank mixing concerns mentioned previously. Non-chelated or partially chelated iron should be checked for compatibility. **LM**

CLASSIFIEDS

RATES: $1.25 per word (minimum charge, $40). Bold face words or words in all capital letters charged at $1.50 per word. Boxed or display ads: $105 per column inch-1x (one inch minimum); $100-3x; $95-6x; $90-9x; $85-12x. (Frequencies based on a calendar year). Agency commissions will be given only when camera-ready art is provided by agency. For ads using blind box number, add $20 to total cost of ad per issue. Send ad copy with payment to Dawn Nilsen, LANDSCAPE MANAGEMENT, 1 East First Street, Duluth, MN 55802 or call 218-723-9483. Fax Number 218-723-9615.

BOX NUMBER REPLIES: Mail box number replies to: LANDSCAPE MANAGEMENT, Classified Ad Department, 1 East First St., Duluth, MN 55802. Please include box number in address.

BUSINESS OPPORTUNITIES

CURB KING: Curbing machine that lays continuous concrete landscape borders. $2,695. Low investment, high returns. For information call 303-434-5337 or write P.O. Box 40567, Grand Junction, CO 81504. 3/91

WANTED: CONTRACTORS AND REPS for a proven Decorative Concrete System, over 200 dealers nationwide. Excellent commission and bonuses. Full/P.T. Write to Stampcrete Distributor of N.E., 188 Brandy Brow Road, Haverhill, MA 01830 or call (800)832-7444 or (508)374-9284. 3/91

LEARN Professional Landscaping and Gardening at home. Accredited program provides thorough training in all phases of commercial and residential landscaping. Certificate awarded. Free booklet describes program and opportunities in detail. Lifetime Career Schools, Dept. A-415, 2251 Barry Ave., Los Angeles, CA 90064. 9/91

WANT TO BUY OR SELL A GOLF COURSE? Exclusively golf course transactions and appraisals. Ask for our catalog. McKay Golf and Country Club Properties, 15485 N. East Street, Lansing, Michigan 48906. Phone (517)484-7726. TF

WANTED - MANUFACTURERS REPRESENTATIVES AND DISTRIBUTORS - to represent a line of high quality hydroseeding tackifiers. For more information, contact PRSM, Inc. at (215)430-3960. 5/91

HELP WANTED

LANDSCAPE MANAGER: Plan and implement proper maintenance of plants and related landscape items throughout community including parks, rights of way, municipal buildings and grounds. QUALIFICATIONS: B.S. or B.A. in Horticulture, Forestry, Landscape Management or Design or a related field. Needs good knowledge of plants. One to two years experience. SALARY: To $25,000 Annually. SEND RESUME TO: Chuck Wilt, Director, Columbus Parks and Recreation Department, P.O. Box 858, Columbus, Indiana 47202-0858. DEADLINE: Open. Equal Opportunity Employer. M/F/V/H. 3/91

Landscape Supervisor: Established Michigan Contractor looking for self-motivated individual with 5 years minimum experience to manage crews and oversee landscape installation. Send resume and salary requirements to: DeAngelis Contractors, 22425 Van Horn Road, Woodhaven, Michigan 48183. EOE. 4/91

LANDSCAPE MAINTENANCE PRODUCTION SUPERVISOR: Responsibilities include quality control, productivity and customer service for 5 crews. 4 years experience and hort. degree. Health plan with dental. Profit-sharing. Send resume to Ray Knoll, Western DuPage Landscaping, 31W478 Diehl Rd., Naperville, IL 60563. 3/91

ASSISTANT MANAGER/SALES LANDSCAPE MAINTENANCE: Well established, rapidly growing company needs individual to assist in maintenance sales. Must have strong horticultural background and sales experience; 2-5 years experience in green industry. Good communication skills, professional appearance, and willingness to learn our methods are essential. Salary/benefits. Send resume to: Mr. Glenn Kedzie, Tandem Landscape Company, 33W480 Fabyan Parkway, Suite 101, West Chicago, Illinois 60185. 3/91

LANDSCAPE MAINTENANCE PRODUCTION MANAGER: Rapidly growing Central Florida Landscape firm seeking an experienced production manager with strong people and organizational skills. Experience with large commercial accounts and a sincere desire to build a business based on customer service a must. Strong Salary and Benefits. Must relocate to Orlando. Send resume to: Mr. Khalsa, 1174 Florida Central Pkwy., Longwood, Florida 32750. 3/91

LANDSCAPE MAINTENANCE ESTIMATOR: Well established, rapidly growing company needs individual to estimate grounds maintenance. Must have strong horticultural background, be good with numbers, highly detailed, possess good communication skills, professional appearance, and willingness to learn. 3-5 years experience with grounds maintenance crews. Salary/benefits. Send resume to: Mr. Glenn Kedzie, Tandem Landscape Company, 33W480 Fabyan Parkway, Suite 101, West Chicago, Illinois 60185. 3/91

LANDSCAPE MAINTENANCE PRODUCTION SUPERINTENDENT: Well established, rapidly growing company needs individual capable of running multiple crews. Must be good with people, have a strong horticultural background, good communication skills, a professional appearance, be highly organized, and eager to learn. 5-7 years experience with grounds maintenance. Salary/benefits. Send resume to: Mr. Glenn Kedzie, Tandem Landscape Company, 33W480 Fabyan Parkway, Suite 101, West Chicago, Illinois 60185. 3/91

LAWN CARE MANAGER: Seeking individual to coordinate lawn care operations. Responsibilities include all aspects of marketing, sales and production of all lawn care related services. 4 years experience and hort. degree. Health plan with dental. Profit-sharing. Send resume to Ray Knoll, Western DuPage Landscaping, 31W478 Diehl Rd., Naperville, IL 60563. 3/91

LANDSCAPE MANAGEMENT ACCOUNT REP: Large Northeast Ohio firm needs Account Rep for existing and new accounts. Horticulture and Agronomics backround helpful. Be a part of a fast growing, diverse company. Send resume to Ed Gallagher, P.O. Box 438, Painesville, OH 44077. 4/91

SALE-DESIGN-ESTIMATING: A large high quality service oriented site construction corporation is looking for a highly motivated individual to join our team. Must have construction background, excellent communication skills, and a professional manner and appearance. Benefits and pay are commensurate with ability and experience. Send resume to Decorative Paving Co., 33 West 518 Fabyan Parkway, West Chicago, IL 60185. 3/91

LANDSCAPE PROFESSIONALS: Maintain Incorporated, the Southwest's largest commercial landscape maintenance company, is currently seeking dedicated team players for positions in our Dallas office. We offer stable year round employment, regular reviews, benefits, and advancement potential. Stable work references and a good driving record required for all positions. **MAINTENANCE FOREMAN:** Experienced in commercial landscape maintenance. Some horticultural education preferred. **LICENSED IRRIGATOR:** Experienced in commercial sprinkler repairs and clocks. **CERTIFIED PESTICIDE APPLICATOR:** Commercial landscape experience preferred. Call Personnel---(214)241-2202 or send resume to Maintain Incorporated, 2549 Southwell, Dallas, Texas 75229. 4/91

Our continuing growth requires us to find qualified personnel for the following new positions: **ESTIMATOR:** 5-7 years minimum experience with emphasis in commercial estimating. Must have experience in the buy-out of plants, hard goods and sub-contracts. **PROJECT MANAGER:** Must have the ability to coordinate and manage multiple projects simultaneously. You will be responsible for communicating with major clients, management and field supervisors. Administrative skills with attention to follow-up and detail is necessary. If you are the type of individual that thrives on responsibility and can operate with little direction, we would like to hear from you. We have salaries and benefits. Please submit a resume with a cover letter and salary history to: TORRE & BRUGLIO, INC., 20401 Hall Road, Mt. Clemens, MI 48044. Attn: President. 3/91

TWO POSITIONS AVAILABLE: EXPERIENCED ESTIMATOR & CONSTRUCTION GENERAL SUPERVISOR. General Contractor seeking individuals experienced in estimating and site development. Supervision of personnel and dealing with governmental agencies required. Send salary and resume to: DeAngelis Contractors, 22424 Van Horn, Woodhaven, MI 48183. E.O.E. 4/91

FOR SALE

NEW AND USED BROUWER EQUIPMENT: Mowers - VACS - Fork Lifts - Harvesters - and full line of replacement parts. Contact Glenn or Ed Markham at 1-800-458-3644. TF

SPYDERS - New/Used/Rebuilt. New Kohler engines, short blocks and a complete line of engines and Spyder replacement parts. New Style Nichols-Fairfield Torque Hub Kits, heavy duty Wilton Caster Kits, Remote Air Cleaner Kits, heavy duty Carriage Side Plates. We repair and rebuild hydraulic pumps and motors for your Spyder. Same day service. Call or Write: Mobile Lift Parts, Inc., 5402 Edgewood Rd., Crystal Lake, IL 60012. 815-455-7363; 1-800-397-7509. 3/91

BOWIE HYDRO-SEEDER, 800 gallon, trailer mounted, excellent condition. $7,000. Price negotiable. Meyer Landscaping & Garden Center, Inc., Troy, IL 62294. 618-667-6505. 4/91

REINCO HYDROGRASSERS and power mulchers in stock. Opdyke Inc. (Philadelphia Area) 215-721-4444. TF

PAUL FLORENCE Turfgrass: Quality seed for the Turf Professional. Elite Bluegrasses, Fine-Leaf Ryegrasses, and Turf-Type Tall Fescues. Custom mixing our specialty. Silva-Fiber mulch and supplies for hydro-seeders. Quality Elite Bluegrass Sod. Call us! (513)642-7487. 13600 Watkins Rd., Marysville, OH 43040. TF

QUALITY TURF GRASSES: Sod or sprigs. Meyer Z-52, Tifgreen II, Tifdwarf, Tifway. Sprig planting available. Quail Valley Farm, Inc. 1-800-666-0007. 3/91

High quality professional horticulture training videos. 100% satisfaction guaranteed! Call or write for a free color catalog. San Luis Video Publishing, P.O. Box 4604, San Luis Obispo, CA 93403 Tel: (805)545-5426. Fax: (805)545-5423. 3/91

FOR SALE: 1986 GMC Isuzu Cabover; 235 CID turbo diesel engine; 5 speed transmission; PTO Driven (Indication light); Hydro cell D25 pump; Stainless steel bed - 2 compartment tank (stainless steel), Front - 150 gallons, Back - 550 gallons; Mechanical agitation (paddle); 2 Hannay reels (electronic rewind); 2 rolls of sinflex hose; 2 chem-lawn guns (with nozzles); 2 spreader holders; 2 hand sprayer holders; 1 water jug with holder; 1 utility box. All maintenance records kept. Asking.....**$13,500.** Contact.....Kevin O'Connor or contact Sequoia Lawn Care.....201-891-6035. 3/91

One Lawn Truck - Mercedes Benz Diesel. Excellent condition-1981. 1,200 gallon 2 compartment stainless steel tank. Also holds 1,000 lbs. of dry fertilizer. Hydro-cell 25 gallons per minute pump. 2 hose reels with guns. $9,500. 201-891-6035. 3/91

SOD blends of four bluegrasses or bluegrass and perennial ryegrass blends shipped via our trucks within 300 miles of Pittsburgh. Penncross bent sod shipped within 1,000 miles of Pittsburgh. Vicnor Farms, Connoquenessing, Pennsylvania 16027. 412-789-7811. 3/91

FOR SALE: Northwestern Indiana sod business serving the Chicago and Indianapolis markets. Includes all rolling equipment, buildings, irrigation and 1 1/2 million yards of harvestable sod on 530 acres. A profitable well established business. Call or write **WILLE & STIENER REALTORS,** P.O. Box 290, Crown Point, Indiana 46307. Attention: Gil Stiener. Phone (219)663-2990. 3/91

Finn Hydroseeders, Mulch Spreaders, Krimpers, Pit Burners, Fiber Mulch & Tackifiers. New & Used. **Wolbert & Master, Inc.,** P.O. Box 292, White Marsh, MD 21162, 301-335-9300, 1-800-234-7645. TF

Meyer Z-52 zoysia sod, bermuda-free, forklift delivery to the Mid-Atlantic region. Oakwood Sod Farm, Salisbury, MD 301-742-3086. 4/91

LAWN SEED: Wholesale. Full line of top quality grasses. Improved bluegrass varieties, tall fescues and fine bladed ryegrasses. We specialize in custom mixing. Oliger Seed Company, 89 Hanna Parkway, Akron, OH 44319. Call collect (216)724-1266. TF

PIPE LOCATOR INEXPENSIVE! Locates, traces underground drain, water pipe lines of clay, PVC, ABS, steel, cement. Finds sprinklers, valves, clogs. Bloch Company, Box 18058, Cleveland, Ohio 44118. (216)371-0979. TF

Lawn Assistant, Software and Updates thru August '90. $900. Call 918-258-3566. 4/91

BENT GRASS available for immediate pick-up or delivery. For information call Jade Run Turf and Sod Farm: 800-332-1220. 12/91

HYDRO-MULCHERS AND STRAW BLOWERS: New and used. **JAMES LINCOLN CORPORATION,** 3220 S. Jupiter Rd., Garland, TX 75041. (214)840-2440, (800)527-2304. TF

FOR SALE - HYDROSEEDER - FINN TITAN 3000: Very good condition. John Deere diesel engine with 800 hours. Mounted on a 1978 Mack 685. $32,000. 216-539-4450. 3/91

DAKOTA
FINN
TREE TRANSPLANTER
Lightweight, Variable Size Rootball (16" - 28"), Component Adaptable (sprayer, logsplitter, dump box, post-hole digger). Available in 3 models (towable, bucket mount, 3 pt.).
MID DAKOTA CORP.
Box 728 • Garrison, ND 58540
Phone (701) 337-5619 or 1-800-327-7154

FREE PARTS CATALOG: Commercial OEM quality mower parts guaranteed to fit walk-behind mowers. Wholesale prices on blades, belts, filters, catchers, trimmer line and engines to fit Bobcat, Bunton, Kees, Scag and Exmark. Call 1-800-343-4333. **LAWN CARE PARTS UNLIMITED** delivers savings to your doorstep! 3/91

1990 Jacobsen 417T Turfcat Mower, Diesel, 17-Horse, 9-Horse Peco Mounted Vacuum. Only 189 hours. (812)265-3939. 3/91

Husler zero turning radius mowers: 2-Model 251 18 hp 50" deck, Model 272 23 hp 72" deck, Model 305D diesel 20 hp 72" deck, Model 262 18 hp 60" deck, Model 400 Rangewing 24 hp 1-72" deck, 2-40" decks, Model 400 D 24 hp 72" deck. *Mowers only in operation 2 seasons and have been completely renovated for a new season. Owner highly motivated to sell. Call Mr. Khalsa. 407-831-8101. 3/91

KELWAY® professional **SOIL ACIDITY** and **SOLUBLE SALTS TESTERS,** available from distributors nationwide. **HB-2** and **SST** brochures from **KEL INSTRUMENTS CO., INC.,** Dept. 1, P.O. Box 2174, Vineyard Haven, MA 02568. (508)693-7798. 10/91

'86 ROTOMIST BLOWER for sale: 500 psi bean pump powered by a 4 cyl. Ford gas engine. 250 gal. tank. Contact Mike Young at Edmonds Landscaping, Halifax, Nova Scotia, Canada, 1-902-423-8174, Fax 1-902-455-9956. 4/91

1989 Vermeer LM-35 4 wheel drive Irrigation Plow/Trencher. Deutz 35 hp air-cooled engine. $16,500. Contact Roger (708)888-1890. 3/91

Sod, sprigs, row planting, strip sodding, solid sodding, fairway renovations, complete turn-key jobs. 16 yrs. golf course experience. 1-800-458-4756, DOUBLE SPRINGS GRASS FARM, Searcy, Arkansas. TF

EDUCATIONAL OPPORTUNITIES

GRAYSON COLLEGE, Denison, Texas. Two-year technical program in Golf Course and Turfgrass Management. 18-hole golf course on campus. Dormitories, placement assistance, financial aid and scholarships available. Contact: GCC, 6101 Grayson Drive, Denison, TX 75020. 214-465-6030, Extension 253. 6/91

WANTED

Wanted: Gang Mowers. Jacobsen or Toros, any condition, priced accordingly. Also need Greens Mowers and Nationals, etc. 313-653-5695. 3/91

Wanted used Picstone rock picker any condition, or literature of one. Was made by Bridgeport Iron Works in Bridgeport, Connecticut. Call Fran Dunn at McGinty Bros., Inc. 708-438-5161 or 708-526-9322. 3/91

USED EQUIPMENT

Hydrobrute 30" Tree Spade - $2,500. In good working condition, ready to go to the field. **CLOVERDALE NURSERY,** Boise, ID (208)375-5262. 3/91

BUCKET TRUCKS, Straight Stick, Corner Mount and Knuckle Boom Cranes. Brush Chippers - New Asplundh (Morbark Disc Type), New Asplundh Drum Type. Best prices anywhere. Used Chippers - Asplundh, Woodchuck, etc. 2 to 8 usually in stock. Sprayers, Dumps, Stakes, Log Loaders, Crew Cab Chip Box Dumps, Railroad Trucks, 50 in stock. Sold as is or reconditioned. Opdyke's, Hatfield (Philadelphia Area) 215-721-4444. TF

AD INDEX

NO.	ADVERTISER	PAGE NO.
101	All Green Management	22
102	Anoka Technical College (Regional)	30
103	Bartlett Tree Experts	78
104	B.A.S.F. Corp.	27
105	Blue Mountain Industries	83
108	Ciba Geigy Corp./Banner	42-43
106	Ciba Geigy Corp./Subdue	12-13
107	Ciba Geigy Corp./Triumph (Regional)	65
109	Deere and Co., John	2-3
110	DowElanco	6-7
221	Gravely International, Inc.	49
116	Grazier Division of M & W Gear Co.	18
280	Howard Price Turf Equipment	63
112	Kem Enterprises, Inc.	30
113	Lebanon Chemical Corp.	55
247	Lofts Seeds, Inc.	CV4
114	Lombardini USA, Inc.	72
117	Milwaukee Sewerage Commission	71
115	Monsanto Co.	71
118	Mobay Corp./Dyrene	47
119	Mobay Corp./Tempo	28-29
120	Mustang Manufacturing Co., Inc.	79
121	Nor Am Chemical Co.	51
122	Northrup King Co.	15
123	Olathe Manufacturing, Inc.	26
124	Oregon Tall Fescue Commission	70
125	PBI Gordon Corp./ Embark	24-25
126	PBI Gordon Corp./ Embark	24-25
127	Peterson Seed Co., Inc.	69
128	Pickseed West, Inc.	31
129	Promark Products, Inc.	72
132	Ransomes, Inc.	45
131	Reemay, Inc.	19
133	Rhone Poulenc Ag. Co./ Ronstar	59
134	Rhone Poulenc Ag. Co./ Ronstar	59
136	Rhone Poulenc Ag. Co./ Sevimol	20-21
137	Rhone Poulenc Ag. Co./ Sevimol	20-21
130	Roots, Inc.	73
135	Ringer Corp.	22
138	Sandoz Corp.	36-37
141	Scag Power Equipment	CV3
139	Seaberry Landscaping, Inc.	68
140	Service Master Co.	18
143	UAP Special Products	41
142	Stihl, Inc.	23
145	Tee 2 Green Corp.	CV2
147	Toro Co.	16-17
146	Turf Seed Co.	5
148	Turfco Manufacturing, Inc. (Regional)	14
149	Walker Manufacturing, Inc.	40
150	Wells Cargo, Inc.	78

This index is provided as an additional service. The publisher does not assume any liability for errors or omissions.

SAVE UP TO 40%
ON
PROTECTIVE GOLF NETTING

FOR THE RANGE

- Made of 100% polypropylene.
- Long lasting and durable.
- Simple installation. Netting can be attached to cables with hog rings. Custom length available.
- Available in 3 popular sizes:

  6-1/2' High x 150'

  25' High x 100'

  25' High x 150'.

FOR INDOOR USE

- Made of 100% nylon.
- Small mesh construction stops golf balls safely.
- Sturdy enough to take a direct hit.
- Custom design your own teaching area or cage.

Custom Work Is Our Specialty

CALL NOW FOR A QUOTE

800-633-2354
FAX 205-237-8816

Gold Medal Recreational Products

Blue Mountain Industries, Blue Mountain, Alabama 36201

Circle No. 105 on Reader Inquiry Card

BUCKET TRUCK: Hi Ranger 65', 57', 50'. Skyworkers with chip boxes. Asplundh bucket trucks with chip boxes. Asplundh brush chippers. Bean 55 gal. sprayers. Pete Mainka Enterprises, 633 Cecilia Drive, Pewaukee, WI 53072. 414-691-4306. TF

Two Vermeer Tree Spades: *T-44 on C-30 '82 Diesel Chevy, Like New $11,500. *T-66 on C-65 '73 Gas Chevy, $11,000. (405)842-7177. TF

NEW and USED EQUIPMENT--Asplundh, Hi Ranger and Lift-all forestry bucket trucks, Chipmore wood chippers. Mirk, Inc., (216)669-3567, (216)669-3562, 7629 Chippewa Road, Orrville, Ohio 44667. TF

POSITION WANTED

Horticulturist would like to relocate to a more temperate zone. B.S., M.S. Ornamental Horticulture, 15 years experience in florist, garden center, landscape design/installation management. If you have or need a similar business where the flowering dogwoods and hollies grow well, call or write: Matthew A. Cheever, 10529 CTY KK, Milton, WI 53563. 414-473-2685. 3/91

Rocky Mountain and NW States-Grounds or Parks Management; B.S. Agronomy, 15 years in landscape industry managing public and private concerns. Licensed Applicator and Irrigator, good knowledge of sports turf in transition zone. Resume upon request, send SASE to: LM Box 485. 3/91

SERVICES

ATHLETIC FIELDS renovated and resodded, stripped, tilled, fertilized, soil amendments added, graded and sodded. $20,000 plus or minus 20% within 150 miles of Pittsburgh. Vicnor Farms, Connoquenessing, Pennsylvania 16027. 412-789-7811. 3/91

MISCELLANEOUS

FREE CATALOG of training videotapes including Irrigation, Pesticide Use & Satety, Arboriculture, Equipment Maintenance, Pruning, Plant Selection, Fertilizers, Planting Techniques, Turf Management, Xeriscape, Landscape Design. **$5.00 Sample Video** includes $10 Discount Coupon. Satisfaction Guaranteed! Check, Visa, MasterCard. VEP, California Polytechnic State University, San Luis Obispo, CA 93407. 1-800-235-4146. 8/91

FREE PARTS CATALOG-- If you own a 36"--48"--52" walk behind mower and you feel you're paying too much for parts, call Preco Distributors toll-free and request our parts catalog. **BELTS, BLADES, GRASS CATCHERS, WHEELS AND LOTS MORE!** Replacement parts that fit: **BOBCAT, BUNTON, KEES, EXMARK & OTHERS.** 1 day shipping coast to coast available. All parts carry a 90-day warranty. Don't wait, call 24 hours a day. **TOLL-FREE 1-800-428-8004, in Mass. 413-596-5505. PRECO DISTRIBUTORS, 97 Center St., Ludlow, MA 01056.** TF

PROBLEM MANAGEMENT

Fighting black spot

Problem: *We are finding small (pinhead size), raised spots on wooden decks and house sidings. There are large trees which hang over decks or roofs in some instances, but no evidence of any insects present. What do you think is the possible cause and remedy? (Minnesota)*

Solution: The black spots on house structures are often mis-identified as scale insects or insect excrement.

Recently, Dr. Rayanne Lehman from the Pennsylvania Department of Agriculture reported that the black spots are the spores of the fungus *Sphaerobolus stellatus*. I think the problem you are dealing with is related to this fungus. It is a relative of bird's nest fungus, and is commonly called artillary fungus.

Black spot problem caused by *Sphaerobolus stellatus* has been reported in many parts of the U.S. It grows on substrate such as dung or rotted wood chips as foundation mulches. Reportedly, it prefers open areas with little shade and good moisture. It can even produce spores on mulch used on indoor plant pots and shooting spores on walls, draperies, etc. With sufficient light, the spores can be produced at 10-20°C, indicating the problem is primarily during spring and fall.

These black spots are one to two millimeters in diameter and slightly raised to globular. When scraped open, the center is found to be whitish in color. The fungus produces spores (glebal mass or peridole) inside the fruiting bodies. At maturity, the fruiting body wall splits apically and discharges the glebal mass and can throw it up to six meters.

The sticky coating adheres the mass to any substrate. The fruiting bodies are attracted to light (photrophic) and therefore, the glebal mass is shot toward the source of light.

Because of increasing reports of black spotting due to this fungus, composting industries and researchers are now interested in trying to find solutions to deal with the problem. At this time, no fungicidal treatment is recommended. Consider using an alternate form of mulch around foundation plantings. Experts feel that a yearly addition of fresh, treated tanbark or wood chips may lessen the problem if the old mulch is completely covered.

Simply scraping the glebal mass may not work well because the spores have been reported to be viable for up to 11 years. Therefore, practice good sanitation. Hot soapy water may help remove the spots without affecting the paint.

Frequent spraying harmful

Problem: *Can you damage tree foliage by applying spray applications too close together? (Canada)*

Solution: There would be a potential for damage from applying spray treatments too close together. It depends on several factors:

- sensitivity of the plant material to certain treatments;
- moisture conditions near the rootzone;
- temperature during and around treatment period;
- interval period between treatment;
- application method and/or the pressure used during treatment; and
- circulation of mix in the hose prior to treatment.

Normally, when we follow label specifications concerning treatment rate and intervals, there should not be any adverse effect on target plant species. However, if the growing conditions and/or environmental (climate) situations are not favorable for the treatments, then there would be a potential for damage from spray applications on foliage. The best advice is to read and follow label specifications.

Because of environmental and regulatory concerns, the treatment intervals should be done "as needed" rather than on a calendar date basis. Frequent supplemental treatment should be based on the label or extension and research data.

Managing pine needle scale

Problem: *We had a severe problem with pine needle scale last year. How can we manage this problem, and when is the best time? (New York)*

Solution: Pine needle scale on pines, particularly mugo pine, can be severe in some years. Severe infestation can be unsightly and can stress and weaken the plant. These plants may recover very slowly and poorly and may require prompt removal.

Dr. Douglas Caldwell, Davey Tree Co. staff entomologist, recommends using 2 percent horticultural oil. He prefers to provide the treatments coinciding with certain plant blooming. This is called phenology. With this approach for crawler (young scale insect) management, he recommends that the first application of horticultural oil be made when Mugo pines are producing pollen. This would be around April 21 to May 19.

The second treatment of oil should be made when the trumpet creeper (bright orange) is in flower (June 25 to August 15).

To catch the majority of the settled crawlers, applications made around the last target dates (May 19 for first application; August 15 for second) are preferred.

A third application may be needed to clean up the escaped crawlers from oil treatments. If needed, consider providing this around September or October before the female matures.

Horticultural oil treatments alone should manage the pine needle scale problem. However, if the problem is severe, an application of insecticidal soap plus either Sevin or Dursban can be used between the oil treatment "windows" as needed.

Read and follow label specifications for best results.

LM

Balakrishna Rao is Manager of Technical Resources for the Davey Tree Co., Kent, Ohio.

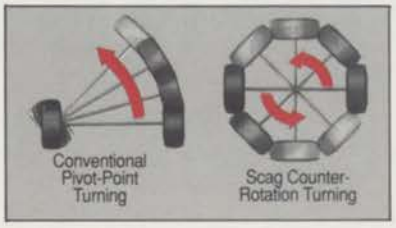
Questions should be mailed to Problem Management, LANDSCAPE MANAGEMENT, 7500 Old Oak Boulevard, Cleveland, OH 44130. Please allow 2-3 months for an answer to appear in the magazine.

SCAG ZERO-TURN WALKER: THE BEST PERFORMING, MOST ADVANCED MOWER EVER MADE.

Just a squeeze of the controls. That's all it takes to move Scag's zero-turn, dual-hydro walker from forward to neutral to reverse. Scag's unique control system allows you to select variable speeds for efficient, comfortable mowing. From fast to slow and anything in between.

Scag's zero-turn walker turns on a dime without scuffing. Our unique design allows one wheel to rotate forward while the other rotates in reverse. It's the smoothest turning machine in the world.

Two heavy-duty White motors and two Sundstrand pumps combine to give this zero-turn walker the most dependable drive system in the business. Unlike complicated hydrostatic transaxles, each component of this drive system can be easily serviced or removed in minutes. You simply replace one component instead of the entire system. That means less downtime and less labor costs.



Plus, Scag backs this drive system with a two-year commercial warranty.

When it comes to a smooth, manicure-finish cut every time, nobody beats Scag. Our extra-wide discharge chute disperses grass so well that catchers are often unnecessary. The walker's wide stance means virtually no scalping. And larger tires provide better flotation, traction and curb climbing.

Try Scag's versatile zero-turn walker at your Scag dealer today. You'll see why Scag is "Simply the Best."

SIMPLY THE BEST

EXPO 90

OVERALL WINNER
SCAG ZERO-TURN WALK-BEHIND

SCAG
POWER EQUIPMENT

Subsidiary of Metalcraft of Mayville, Inc., 1000 Metalcraft Drive, Mayville, Wisconsin 53050

© SCAG POWER EQUIPMENT, 1990. ALL RIGHTS RESERVED.

Circle No. 141 on Reader Inquiry Card

MEET YOUR TALL FESCUE NEEDS WITH THE BEST

Lofts has three of the best-performing tall fescues available. Each one offers all the good looks and tough performance you need:

- Attractive, dark green color
- Fine-leafed texture
- Resistance to drought, disease, insects and traffic
- No thatch buildup
- Adaptability to sun or shade
- Less maintenance than bluegrasses or ryegrasses

New Rebel Jr.* even offers the added advantage of slower growth.

All of these varieties offer good looks, tough performance and low maintenance. When you need a fescue, choose one of the best!

Lofts Seed Inc.
World's largest marketer of turfgrass seed
Bound Brook, NJ 08805
(201) 356-8700 • (800) 526-3890
(800) 624-1474 (NJ)

Lofts/New England
Arlington, MA
(617) 648-7550

Lofts/Maryland
Beltsville, MD
(800) 732-3332
(800) 732-7773 (MD)

Lofts/Great Western
Albany, OR
(503) 928-3100 or
(800) 547-4063

Sunbelt Seeds, Inc.
Norcross, GA
(404) 448-9932 or
(800) 522-7333

To locate the Lofts' distributor nearest you, call
(800) 526-3890 (Eastern U.S.) • (800) 547-4063 (Western U.S.)

Circle No. 247 on Reader Inquiry Card

*Limited quantities available Fall 1989. Commercially available Fall 1990.